

ADSL Modem/Router

with USB and 10/100M LAN Port

User's Manual

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Chapter 1

Introduction

1.1 An Overview of the ADSL Modem/Router

The ADSL Modem/Router provides a high-speed Ethernet port and an USB port for high-speed Internet browsing. It can support downstream transmission rates of up to 8Mbps and upstream transmission rates of up to 1024Kbps. It is compliant with Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt (G.992.1); G-lite (G992.2); G.hs (G994.1)).

The product supports PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516), and IPoA (RFC1577) to establish a connection with ISP. The product also supports VC-based and LLC-based multiplexing.

It is the perfect solution to connect a small group of PCs to a high-speed broadband Internet connection. Multi-users can have high-speed Internet access simultaneously.

This product also serves as an Internet firewall, protecting your network from being accessed by outside users. Not only provide the natural firewall function (Network Address Translation, NAT), it also provides rich firewall features to secure user's network. All incoming data packets are monitored and filtered. Besides, it can also be configured to block internal users from accessing to the Internet.

The product provides two levels of security support. First, it masks LAN users' IP addresses which are invisible to outside users on the Internet, making it much more difficult for a hacker to target a machine on your network. Secondly, it can block and redirect certain ports to limit the services that outside users can access. For example, to ensure that games and other Internet applications will run properly, user can open some specific ports for outside users to access internal services in network.

Integrated DHCP services, client and server, allow multiple users to get their IP addresses automatically on boot up from the product. Simply set local machines as a DHCP client to accept a dynamically assigned IP address from DHCP server and reboot. Each time local machine is powered up; the router will recognize it and assign an IP address to instantly connect it to the LAN.

For advanced users, Virtual Service function allows the product to provide limited visibility to local machines with specific services for outside users. An ISP provided IP address can be set to the product and then specific services can be rerouted to specific computers on the local network. For instance, a dedicated web server can be connected to the Internet via the product and then incoming requests for HTML that are received by the product can be rerouted to the dedicated local web server, even though the server now has a different IP address. In this example, the product is on the Internet and vulnerable to attacks, but the server is protected.

Virtual Server can also be used to re-task services to multiple servers. For instance, the product can be set to allow separated FTP, Web, and Multiplayer game servers to share the same Internet-visible IP address while still protecting the servers and LAN users from hackers.

1.2 Package Contents

1. ADSL Modem/Router
2. One CD-ROM containing the driver and online manual
3. One Quick Start Guide
4. One RJ-11 ADSL/telephone cable
5. One CAT-5 crossover LAN cable
6. One USB cable
7. One power adapter

1.3 The ADSL Modem/Router Features

The ADSL Modem/Router provides the following features:

ADSL Multi-Mode Standard: Supports downstream transmission rates of up to 8Mbps and upstream transmission rates of up to 1024Kbps. It is compliant with Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt (G.992.1); G-lite (G992.2); G.hs (G994.1)).

Multi-Protocol to Establish A Connection: Supports PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516) and IPoA (RFC1577) to establish a connection with ISP. The product also supports VC-based and LLC-based multiplexing.

Network Address Translation (NAT): Allows multi-users to access outside resource such as Internet simultaneously with one IP address/one Internet access account. Besides, many application layer gateway (ALG) are supported such as web browser, ICQ, FTP, Telnet, E-mail, News, Ping and others.

Domain Name System (DNS) relay: Provides an easy way to map the domain name (a friendly name for user such as www.yahoo.com) and IP address. When local machine sets its DNS server with this router's IP address. Then every DNS conversion request packet from the PC to this router will be forwarded to the real DNS in outside network. After the router gets the reply, then forwards it back to the PC.

PPP over Ethernet (PPPoE): Provides embedded PPPoE client function to establish a connection. Users can get greater access speed without changing the operation concept, sharing the same ISP account and paying for one access account. No PPPoE client software is required for local computer. The Automatic Reconnect and Disconnect Timeout (Idle Timer) functions are provided, too.

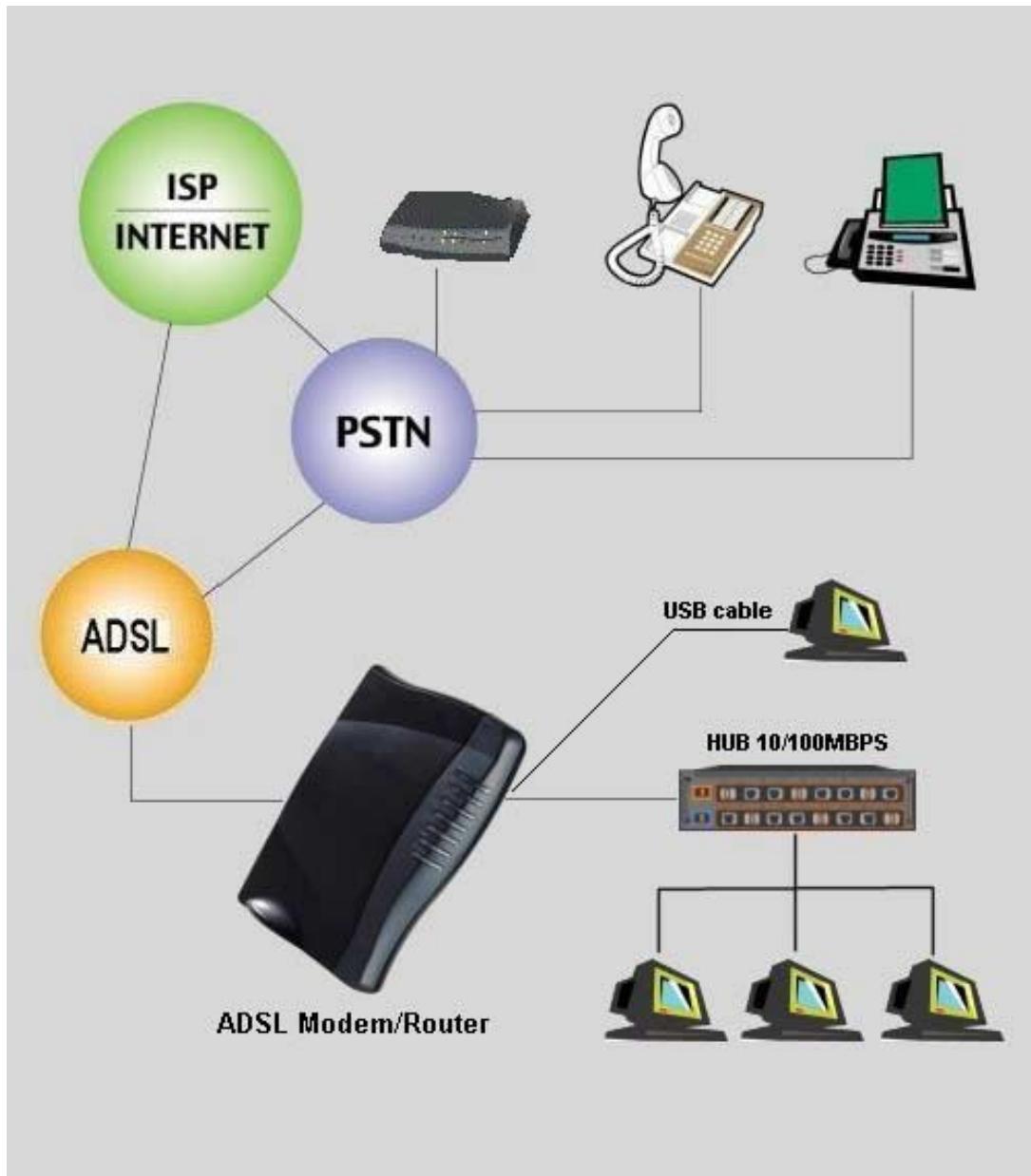
Virtual Server: User can specify some services to be visible from outside users. The router can detect incoming service request and forward it to the specific local computer to handle it. For example, user can assign a PC in LAN acting as WEB server inside and expose it to the outside network. Outside user can browse inside web server directly while it is protected by NAT. A **DMZ** host setting is also provided to a local computer exposed to the outside network, Internet.

Bridge Filtering: Filters the packet based on MAC address. It will increase the performance in LAN and WAN, also provide a higher-level security control.

Dynamic Host Control Protocol (DHCP) client and server: In the WAN site, the DHCP client can get an IP address from the Internet Server Provider (ISP) automatically. In the LAN site, the DHCP server can allocate multiple clients IP addresses and distribute them including IP address, subnet mask as well as DNS IP address to local computers. It provides an easy way to manage the local IP network.

Web based GUI: Supports user-friendly web based GUI for configuration and management.

1.4 The ADSL Modem/Router Application



Chapter 2

Using the ADSL Modem/Router

2.1 Cautions for Using the ADSL Modem/Router



Do not place the router under high humidity and high temperature.

Do not use the same power source for the device with other equipment.

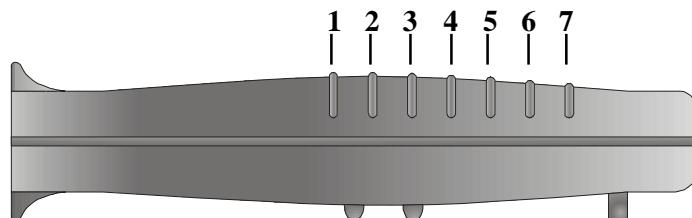
Do not open or repair the case yourself. If the device is too hot, turn off the power immediately and have a qualified serviceman repair it.



Place the product on the stable surface.

Only use the power adapter that comes with the package.

2.2 The Front LEDs



LED		Meaning
1	SYS	Flashes when the router is working properly.
2	ADSL RXD	Flashes when receiving data.
3	ADSL TXD	Flashes when transmitting data.
4	ADSL SYN	Lit green when ADSL physical layer is connected.
5	LAN LNK	Lit green when the LAN link is up.
6	LAN ACT	Flashes when there is activity on the LAN port.
7	PWR	Lit green when power adapter is connected.

2.3 The Rear Ports

Power (jack)	Connect the supplied power adapter to this jack.
USB (USB connector)	Connect the supplied USB cable to this port when connecting to the PC.
LAN (RJ-45 connector)	Connect the supplied crossover cable to this port when connecting to a NIC (Network Interface card) in PC.
	Connect an UTP Ethernet cable to this port when connecting to a LAN such as an office or home network.
LINE (RJ-11 connector)	Connect the supplied RJ-11 cable to this port when connecting to the ADSL.



2.4 Cabling

Through Ethernet Port

The product's LAN port is wired just like a Network Adapter's port. From the product directly to a PC, the cable should be an Ethernet crossover cable. From the product to a hub or switch, the cable should be an Ethernet straight through cable to a normal hub/switch port, or an Ethernet crossover cable to an uplink port.

The most common problem associated with Ethernet is bad cabling or ADSL line. Make sure that all connected devices are turned on. On the front of the product is a bank of LEDs. As a first check, please verify that the PWR, LAN LNK and ADSL SYN LEDs are lit. If they are not, verify that you are using the proper cables.

So long as the cables are connected and the LEDs are lit normally, follow section “**3.2 Configuring the Network Properties**” below to modify the network settings.

Through USB Port

The product can be used as a Network Adapter on your PC. That means you do not have to install a network adapter first on your PC before connecting the ADSL Modem/Router. Just connect the supplied USB cable to the USB port of the ADSL Modem/Router and connect the other end to the PC.

Make sure that your ADSL Modem/Router and PC are turned on. On the front of the product is a bank of LEDs. As a first check, please verify that the PWR, LAN LNK and ADSL SYN LEDs are lit.

So long as the cables are connected and the LEDs are lit normally, follow section “**3.1 Installing the USB Driver**” below to setup this device.



Since the product cannot auto-detect whether your cable is correct or not, please make sure you are using the right cable to a PC or a Hub.

Chapter 3

Installation and Configuration

3.1 Installing the USB Driver

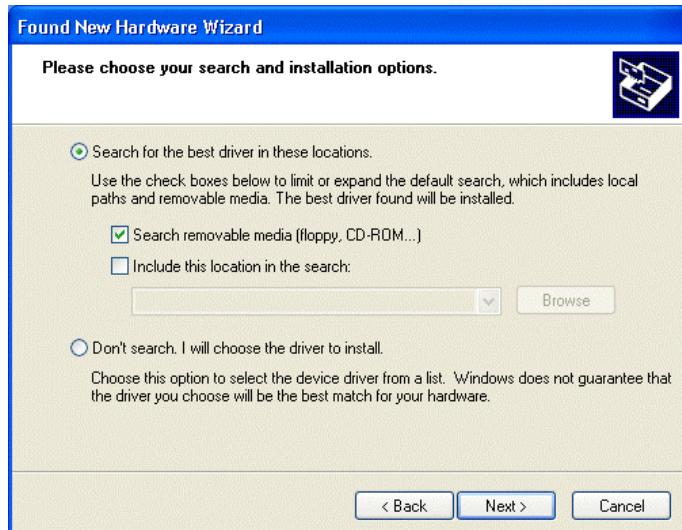
If you connect the ADSL Modem/Router through USB port, for the first time the USB cable is connected to the PC, Windows will automatically detect the device. Follow the steps to install the USB driver.

3.1.1 For Windows XP

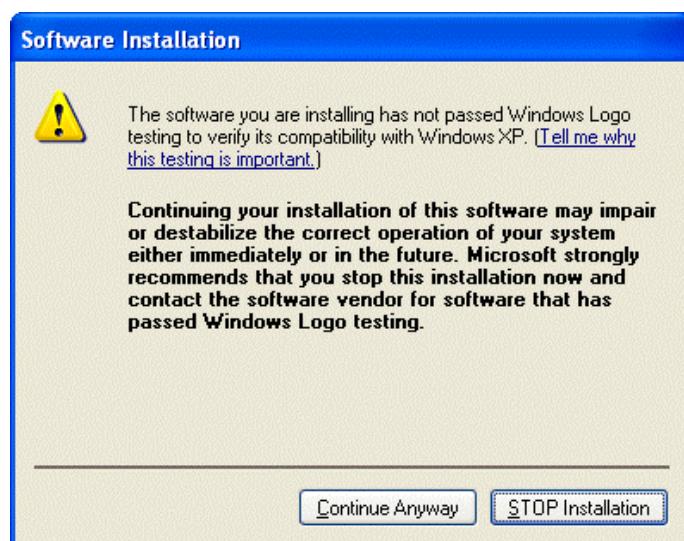
1. When Windows tells you that the new device has been detected, select “Install from a list or specific location” and click “Next >”.



2. Insert the installation CD into the CD-ROM drive. Check “Search removable media” and click “Next >”. Then, it takes seconds to search and install the software.



3. When windows titled “Hardware Installation” or “Software Installation” appear, press “Continue Anyway” to go on.



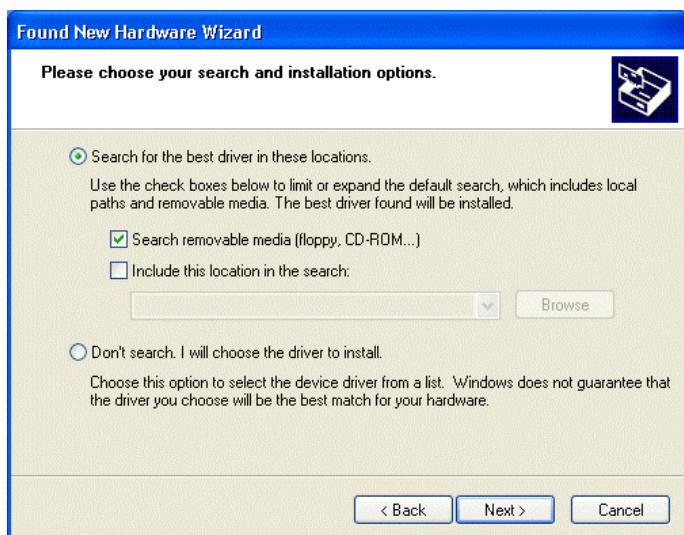
4. Then, click “Finish”.



5. After a few moments, Windows will show the new device, USB ADSL Adapter, has been detected. Select “Install from a list or specific location”. Click “Next >”.



6. Click “Next >” when the following figure appears.



7. When windows titled “Hardware Installation” appears, press “Continue Anyway”.



8. Then, click “Finish” to end installation.



9. After installing the driver, follow the section “**3.2 Configuring the Network Properties**” below to modify the network settings on your PC.

3.1.2 For Windows 2000

1. When Windows tells you that the new device has been detected, click “Next >” to continue.



2. Select “Search for a suitable driver for my device”. Click “Next>”. Then, insert the installation CD into the CD-ROM drive.



3. In next window, check “CD-ROM drives” and click “Next>”.



4. Continuing through the Wizard, click the “Next >” button.



5. When window titled “Digital Signature Not Found” appears, press “Yes” to continue the installation.



6. Press "Finish".



7. If the following window "Digital Signature Not Found" appears, press "Yes" to end the installation.

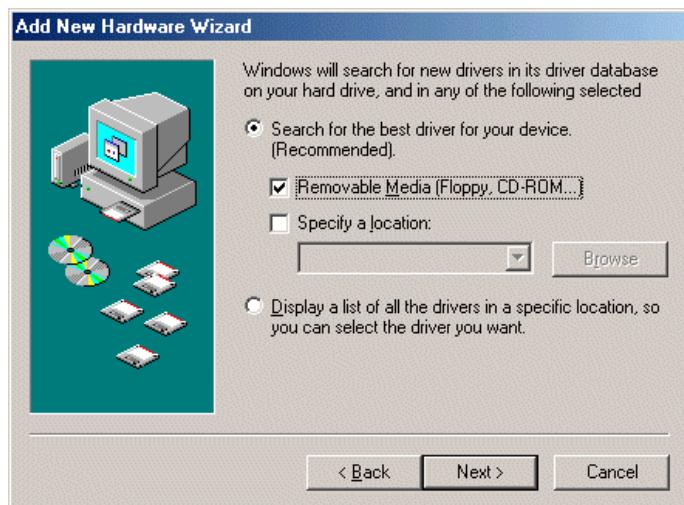


3.1.3 For Windows Me

1. When Windows tells you that the new device has been detected. Select “Specify the location of the driver” and click “Next >”.



2. Insert the installation CD into the CD-ROM drive and check “Removable Media”. Click “Next >” to continue.



3. Continuing through the Wizard, click the “Next >” button.



4. Continuing through the Wizard, Windows will start copying files to your system. Then, click "Finish".



3.1.4 For Windows 98

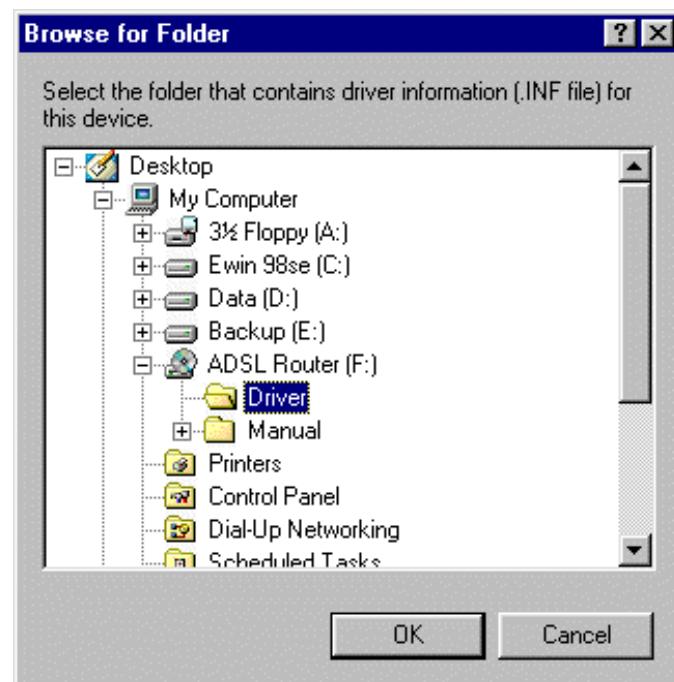
1. When Windows tells you that the new device has been detected, click "Next >".



2. In the next window, select “Search for the best driver for your device” and click “Next >”.



3. Insert the installation CD into the CD-ROM drive and check “Specify a location”. Click “Browse...” to specify the driver directory such as F:\Driver\ . Click “OK” and then “Next >” to continue.



4. Continuing through the Wizard, click the “Next >” button.



5. Windows will start copying files to your system. Then, click “Finish”.



6. You will see the following screen prompting for the path of the Windows source files. Please specify a location. Click “OK”.



3.2 Configuring the Network Properties

This section describes the configuration required by LAN-attached PCs that communicate with the ADSL Modem/Router, either to configure the device, or for network access. These PCs must have an Ethernet interface installed properly, be connected to the ADSL Modem/Router either directly or through an external repeater hub, and have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet of the ADSL Modem/Router. The default IP address of the ADSL Modem/Router is 192.168.1.254 and subnet mask is 255.255.255.0. The best and easy way is to configure the PC to get an IP address from the ADSL Modem/Router.

Please follow the steps below for PC's network environment installation. First of all, please check your PC's network components. If you connect the ADSL Modem/Router through USB port, the TCP/IP protocol stack must be installed. If you connect the ADSL Modem/Router through Ethernet port, the TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to MS Windows relative manuals.



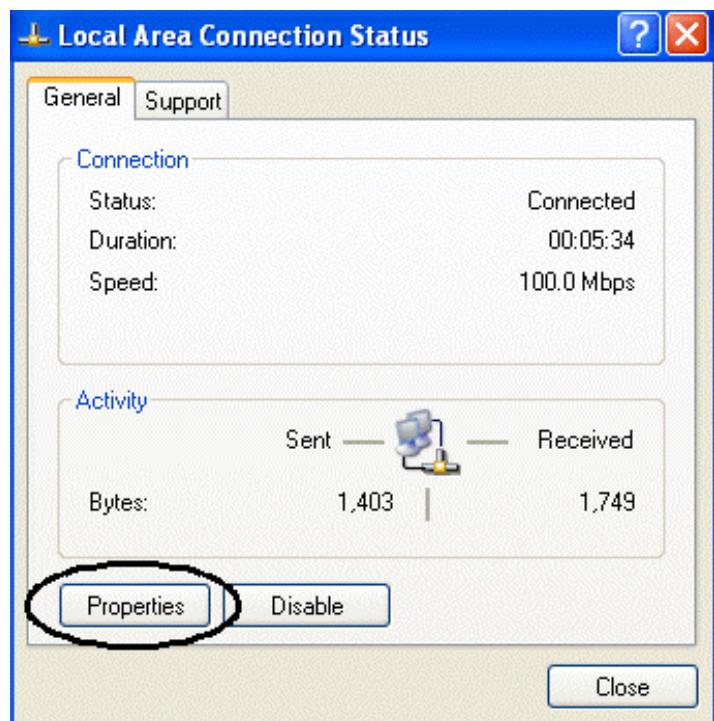
Any TCP/IP capable workstation can be used to communicate with or through the ADSL Modem/Router. To configure other types of workstations, please consult the manufacturer's documentation.

3.2.1 For Windows XP

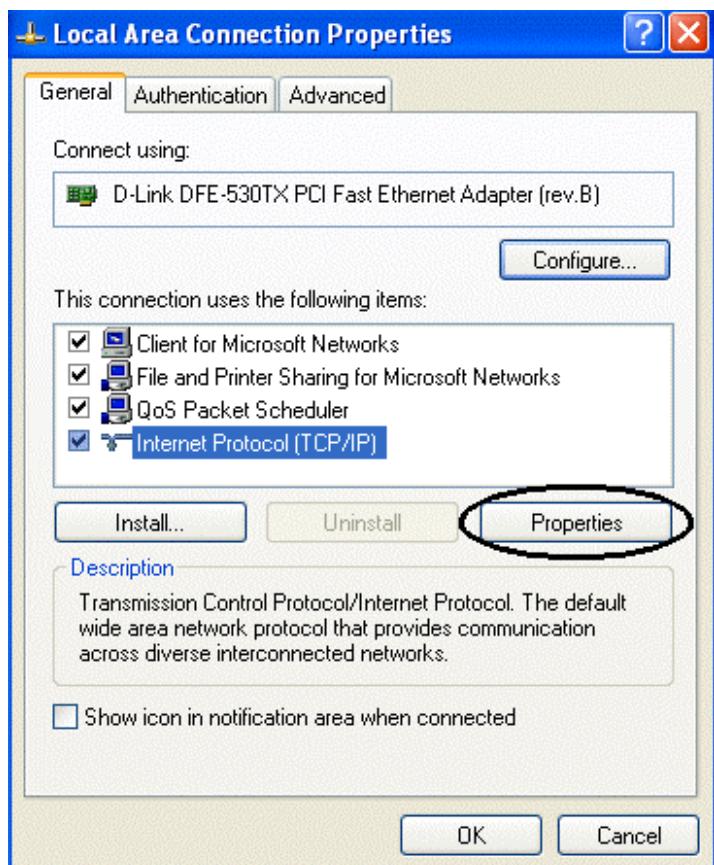
1. Go to Start / Control Panel (in **Classic View**). In the Control Panel, double-click on **Network Connections**.
2. Double-click **Local Area Connection**.



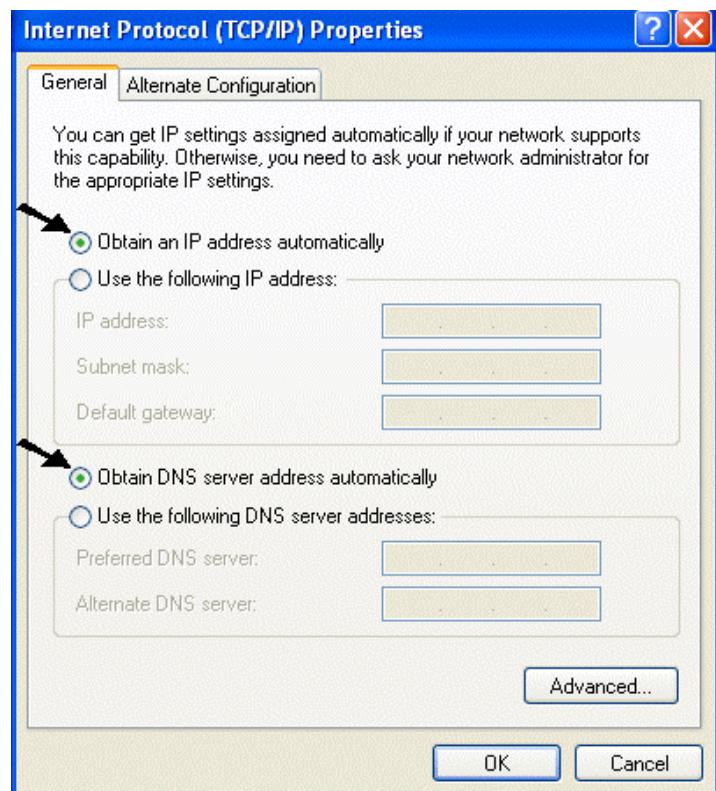
3. In the **LAN Area Connection Status** window, click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

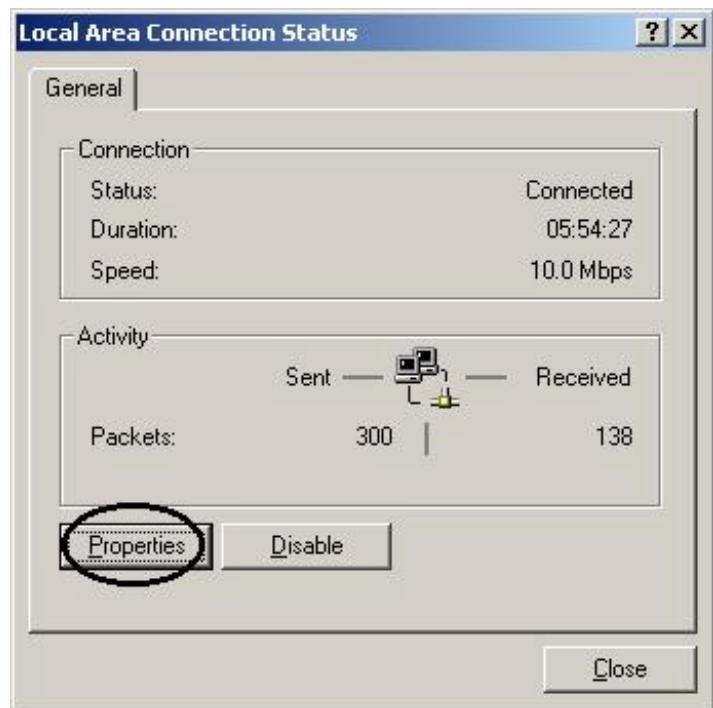


3.2.2 For Windows 2000

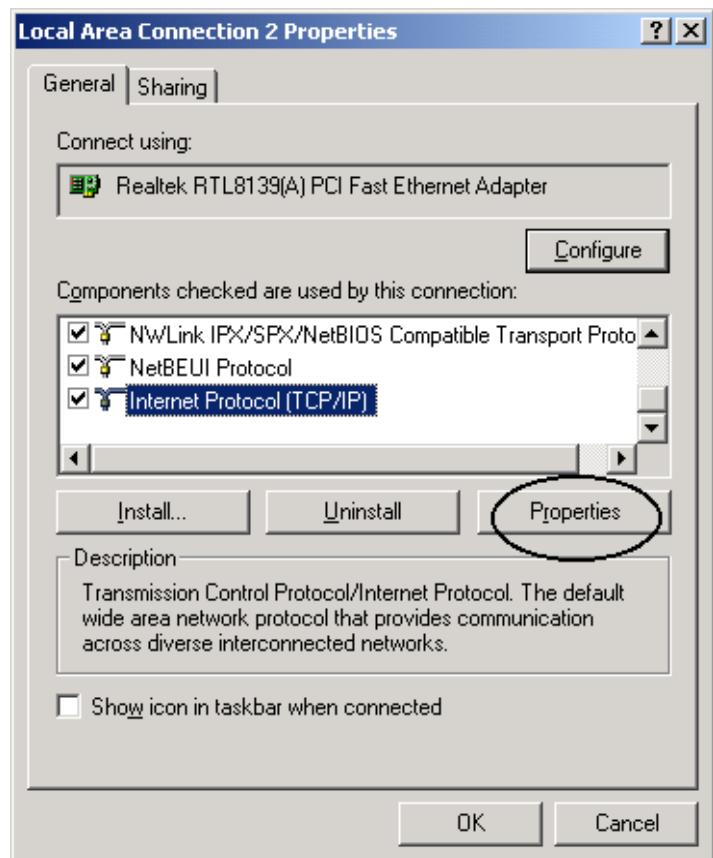
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **LAN Area Connection**.



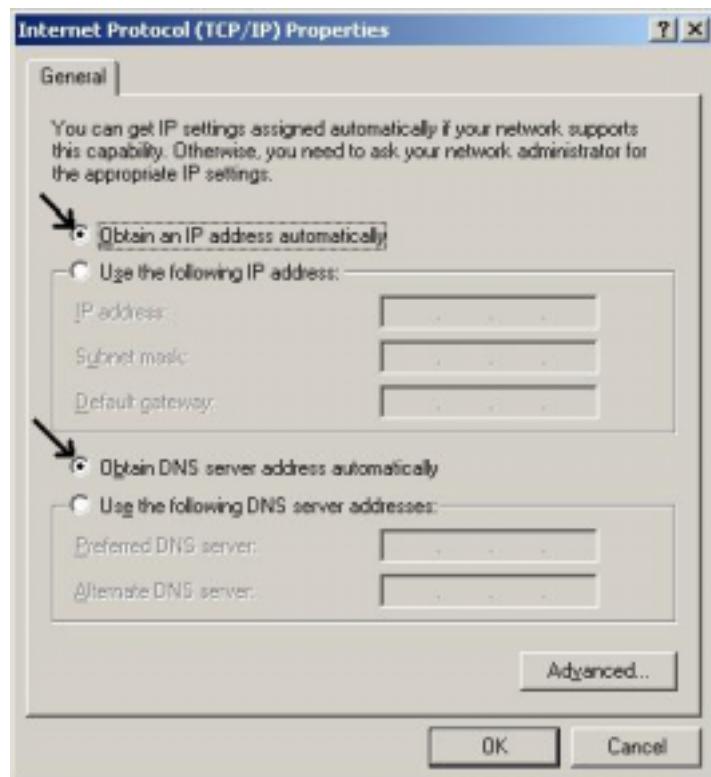
3. In the **LAN Area Connection Status** window, click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

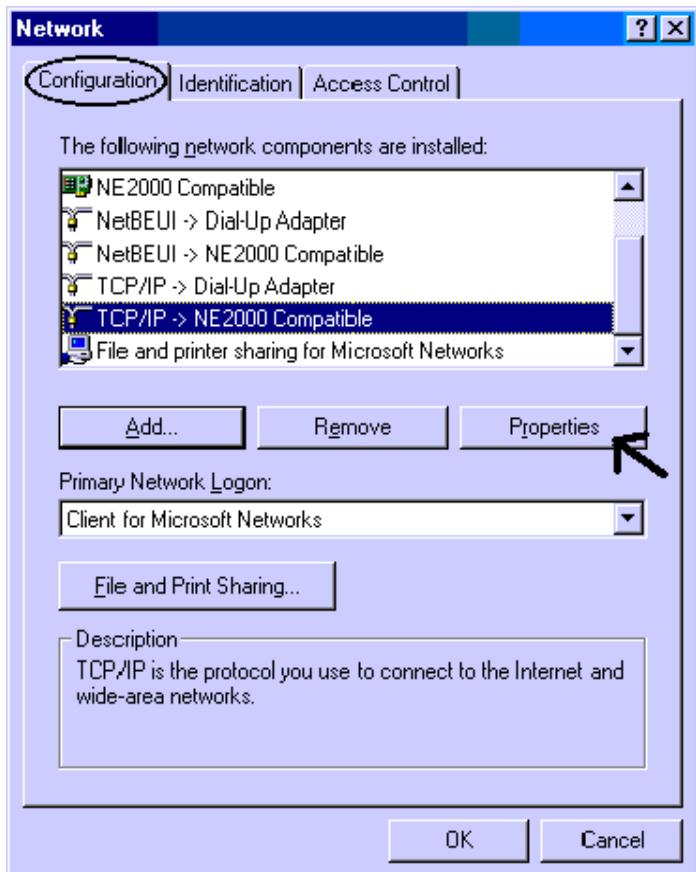


5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

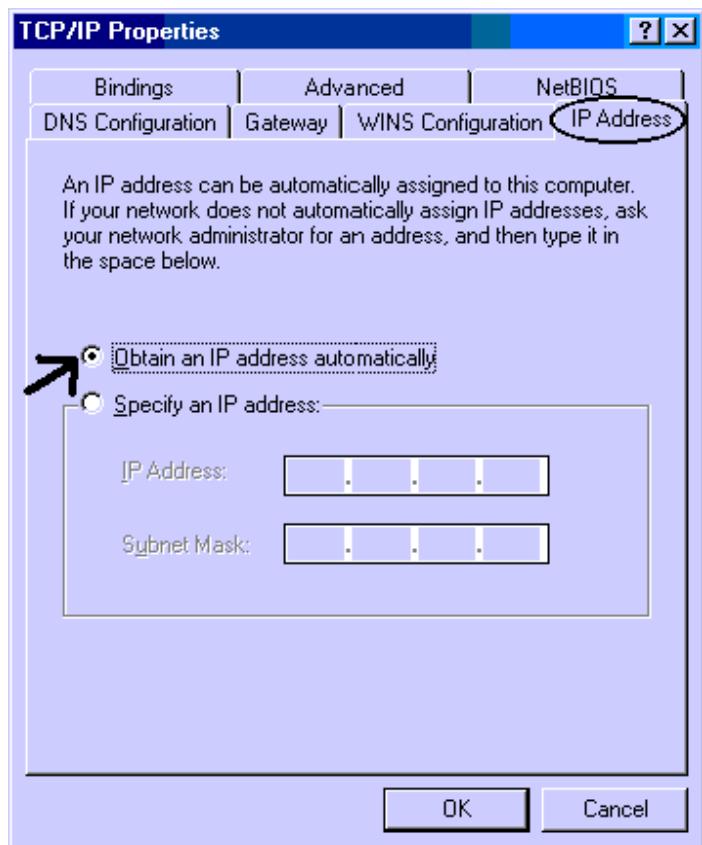


3.2.3 For Windows 95/98/Me

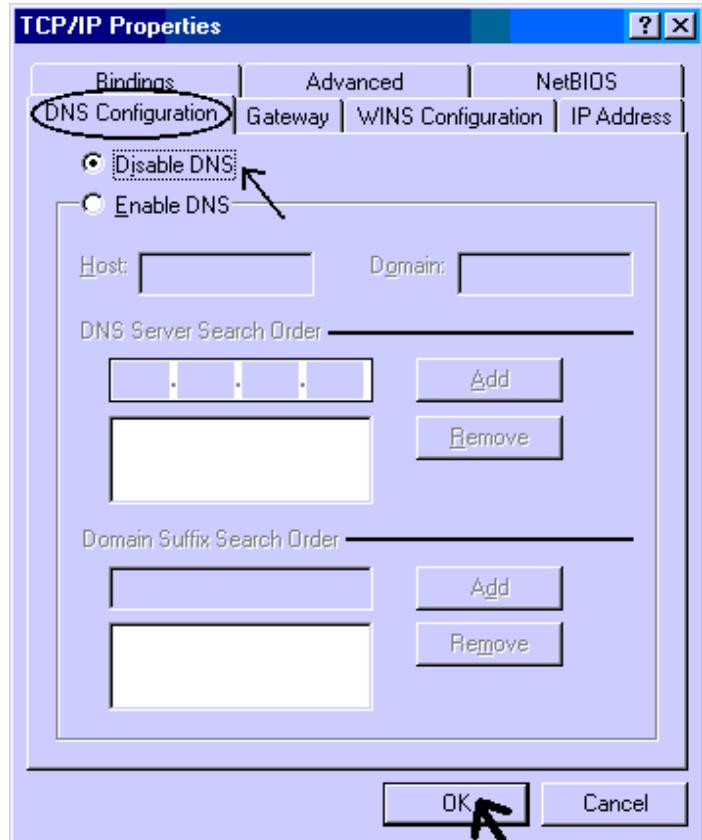
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.
2. Select **TCP / IP -> NE2000 Compatible**, or the name of any Network Interface Card (NIC) in your PC.
3. Click **Properties**.



4. Select the **IP Address** tab. In this page, click the **Obtain an IP address automatically** radio button.

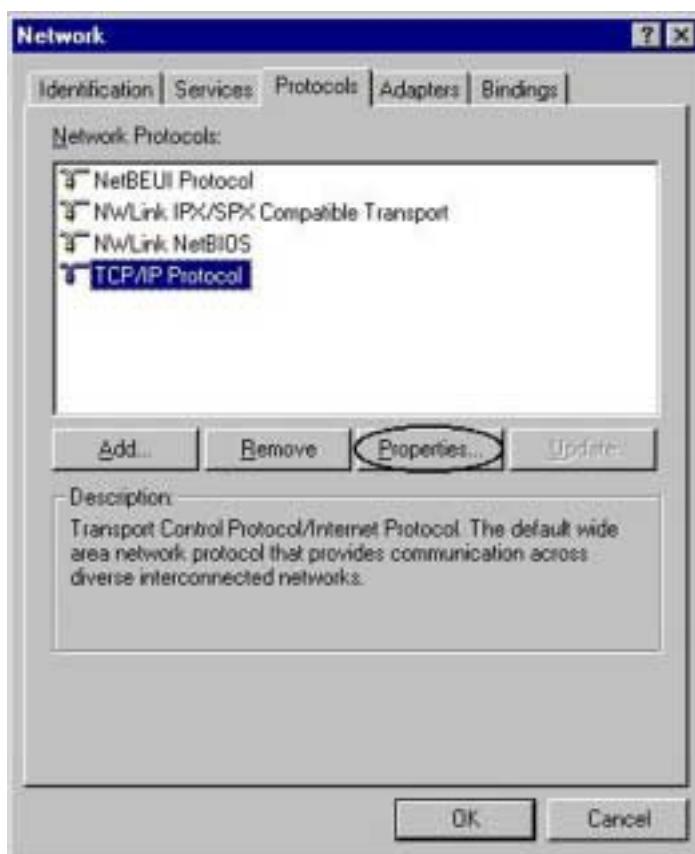


5. Then select the **DNS Configuration** tab.
6. Select the **Disable DNS** radio button and click “OK” to finish the configuration.

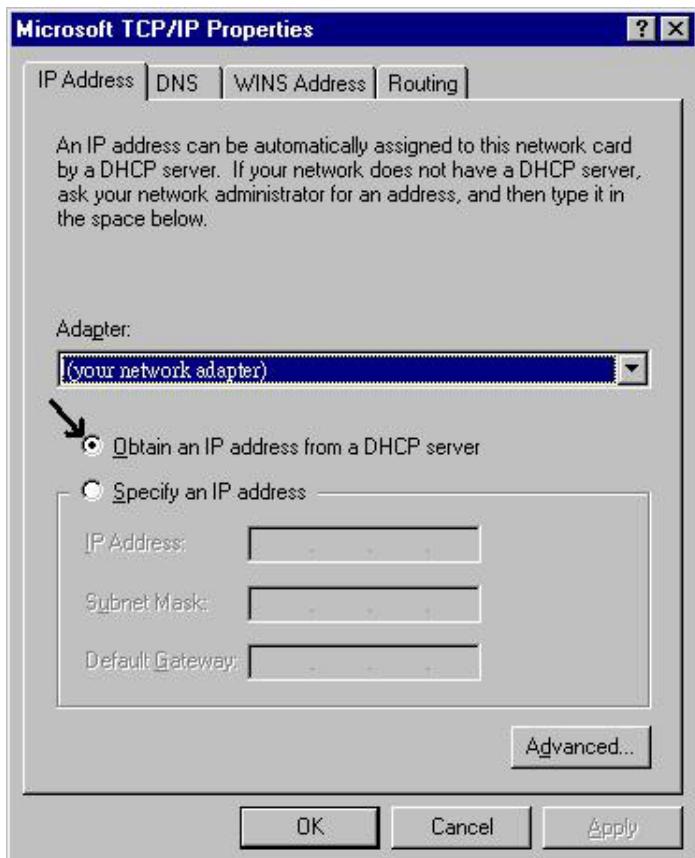


3.2.4 For Windows NT4.0

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.
2. Select **TCP/IP Protocol** and click **Properties**.



3. Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.



3.3 Factory Default Settings

Before you configure this device, you need to know the following default settings.

1. Web Configurator

Password : There are two levels of password protection, **Administrator Level** and **User Level**.

	User Name	Password
Administrator Level	admin	password
User Level	user	password

2. Device IP Network settings in LAN site

IP Address : 192.168.1.254

Subnet Mask : 255.255.255.0

3. ISP setting in WAN site

Virtual Circuit 0: 1483 Routed IP LLC

Virtual Circuit 1 ~ 7 : 1483 Bridged IP LLC

4. DHCP server

DHCP server is enabled.

IP address pool from IP Address : 192.168.1.100 to IP Address : 192.168.1.199

3.2.1 Password

There are two levels of password protection. The first level is for administrator and the second one is for user.

If you want to configure the device with administrator level, type **admin** in the username field and **password** in the password field. If you want to configure the device with the user level, type **user** in the username field and **password** in the password field. Then, click “**OK**” to log in. You can modify these passwords for security and management purpose.



If you ever forget the password to log in, you should contact the dealer where you bought this product.

3.2.2 LAN and WAN Port Addresses

The parameters of LAN and WAN ports are pre-set in the factory. The default values are shown below.

LAN Port		WAN Port
IP address	192.168.1.254	
Subnet Mask	255.255.255.0	The encapsulation of Virtual Circuit 0 is set to be 1483 Routed IP LLC.
DHCP server function	Enabled	

IP addresses for distribution to PCs	100 IP addresses continuing from 192.168.1.100 through 192.168.1.199 (Actually, it can support up to 253 users.)	
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3.4 Information from ISP

Before you start configuring this device, you have to check with your ISP what kind of service is provided, including the following:

1. PPPoE VC-Mux
2. PPPoE LLC
3. PPPoE None
4. PPPoA VC-Mux
5. PPPoA LLC
6. 1483 Bridged IP VC-Mux
7. 1483 Bridged IP LLC
8. 1483 Routed IP VC-Mux
9. 1483 Routed IP LLC
10. Classical IP over ATM
11. Native ATM

Gather the information as illustrated in the following table and keep it for reference.

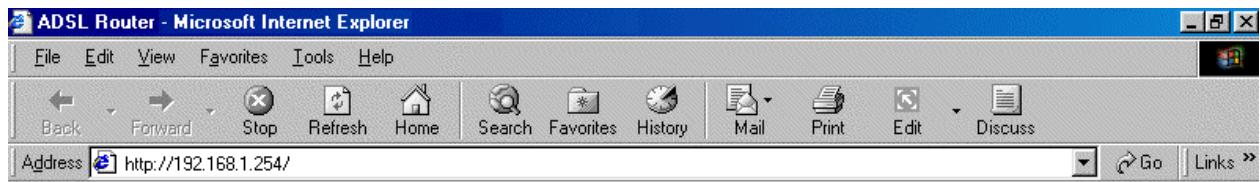
PPPoE VC-Mux	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoE LLC	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoE None	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoA VC-Mux	VPI/VCI, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).

PPPoA LLC	VPI/VCI, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
1483 Bridged IP LLC	VPI/VCI
1483 Bridged IP VC-Mux	VPI/VCI
1483 Routed IP LLC	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
1483 Routed IP VC-Mux	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
Classical IP over ATM	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).

3.5 Configuring with Web Browser

The ADSL Modem/Router can be configured with your Web browser. The web browser is included as a standard application in following operation systems, UNIX, Linux, Mac OS, Windows 95/98/NT/2000/Me/XP, etc. The product provides a very easy and user-friendly interface for configuration.

Open the web browser, enter the local port IP address of the ADSL Router, which default at **192.168.1.254**, and click “Go” to get the login page.



There are two levels of password protection. The first level is for administrator and the second one is for user.



If you want to configure the device with administrator level, type **admin** in the username field and **password** in the password field.



If you want to configure the device with the user level, type **user** in the username field and **password** in the password field.

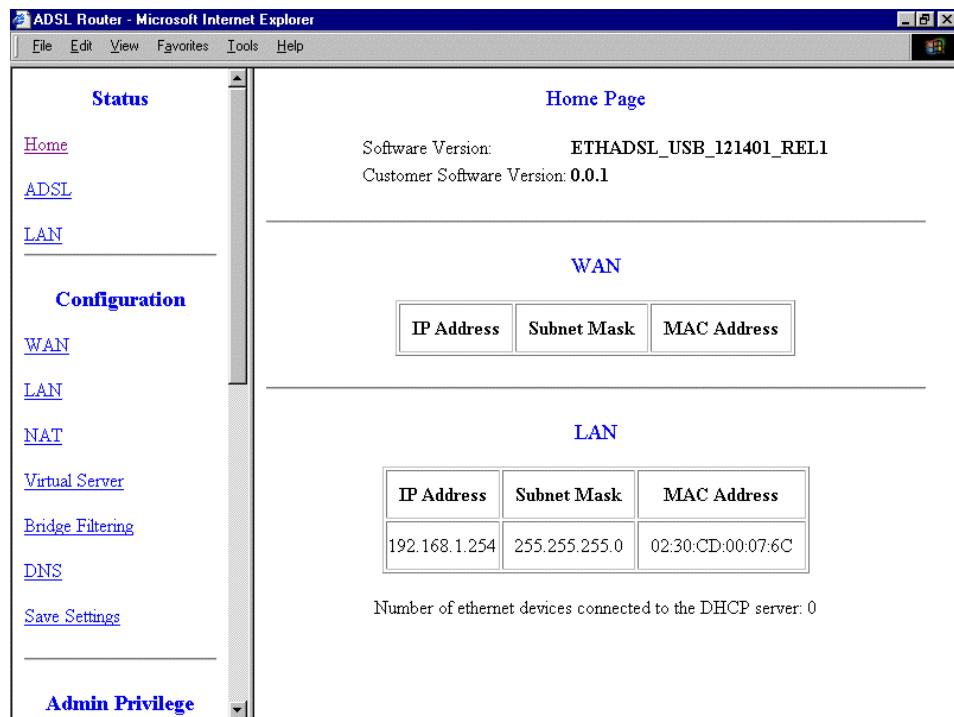


Then, click “OK” to log in. You can modify these passwords for security and management purpose.

At the configuration homepage, the left navigation pane where bookmarks are provided links you directly to the desired setup page. Click on the desired item to expand the page in the main navigation pane.

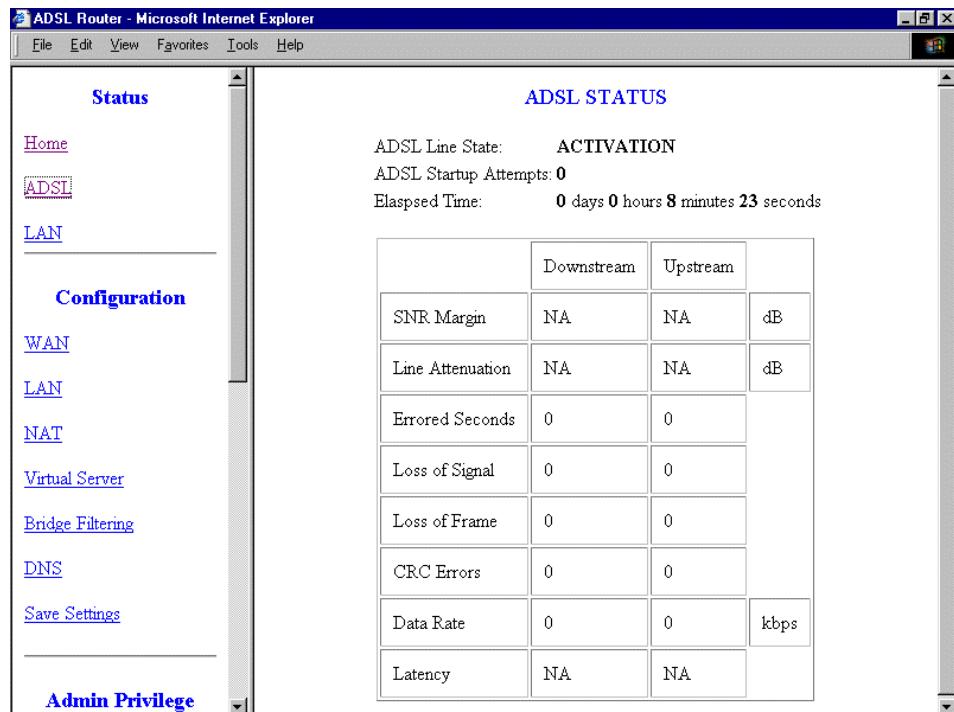
3.5.1 Status – Home Page

This screen contains information of the software version of your device and some settings, such as IP Address, Subnet Mask, and MAC Address of the WAN and LAN connections.



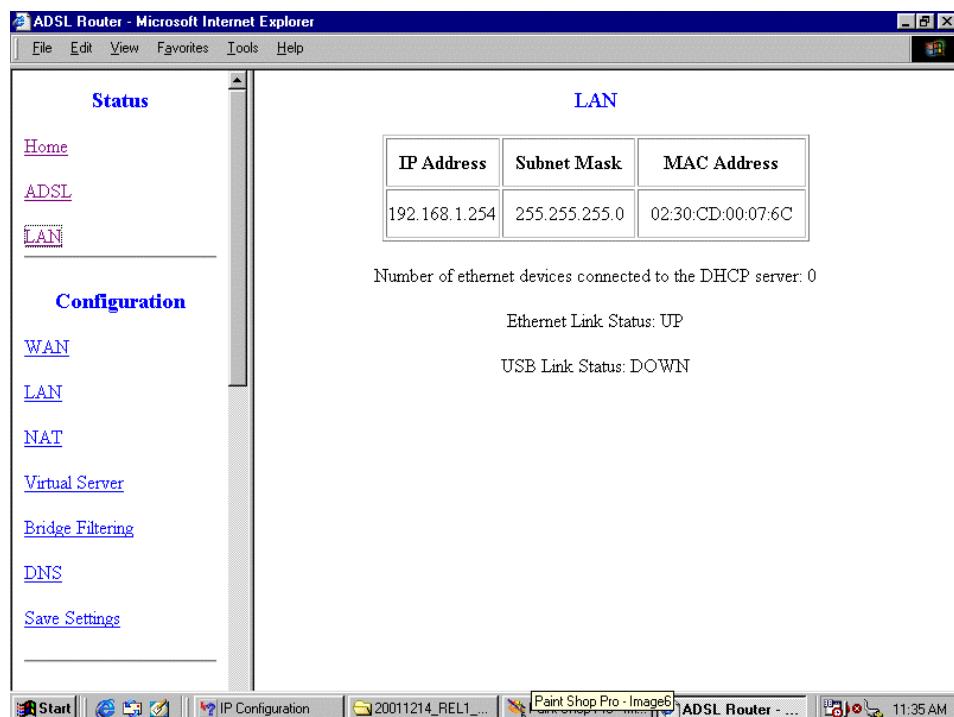
3.5.2 Status – ADSL Status

Displays the status of your ADSL connection. It will refresh every two seconds.



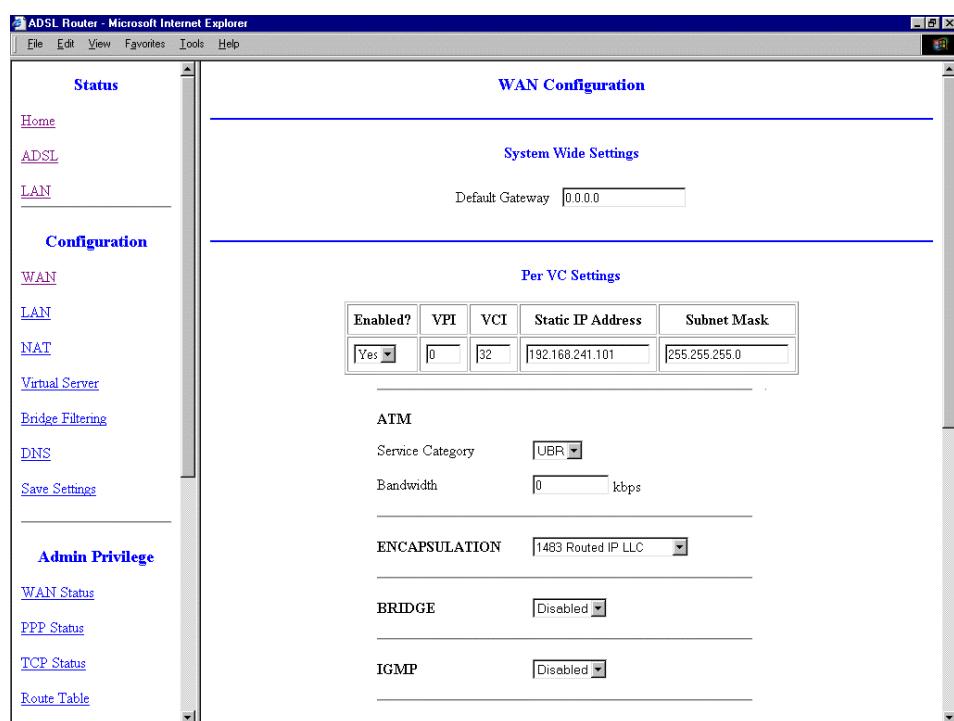
3.5.3 Status – LAN

Displays the status of your Local Area Network (LAN) connection.



3.5.4 Configuration – WAN Configuration

The screens below contain settings for the WAN interface toward Internet.



System Wide Settings

Default Gateway: Enter the gateway address provided by your ISP.

Per VC Settings

There are eight Virtual Circuit (VC) for you to set, from VC 0 to VC 7. Before you make the settings, please scroll down to the button of the page and select the item of **Virtual Circuit** you want to configure. Then, press the **Execute** button.

The screenshot shows a Microsoft Internet Explorer window titled 'ADSL Router - Microsoft Internet Explorer'. The left sidebar has a 'Status' section with 'Home', 'ADSL', and 'LAN' links, followed by a 'Configuration' section with 'WAN', 'LAN', 'NAT', 'Virtual Server', 'Bridge Filtering', 'DNS', and 'Save Settings' links. Below that is an 'Admin Privilege' section with 'WAN Status', 'PPP Status', 'TCP Status', and 'Route Table' links. The main content area has sections for 'BRIDGE' (disabled), 'IGMP' (disabled), 'PPP' (with fields for Service Name, Username, Password, Disconnect Timeout, and Authentication), and 'DHCP' (with a checkbox for DHCP client enable and a Host Name field). At the bottom, a red box highlights the 'Virtual Circuit' dropdown set to '0'. Below it are 'Execute' and 'Reset' buttons, and a note: 'Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.' A 'Save Configuration' link is also present.

Enabled? : Select **Yes** if you want to enable the settings of this VC or select **No** if you want to disable the settings of this VC.

VPI: Consult the telephone company to get the Virtual Path Identifier (VPI) number. The default value is 0.

VCI: Consult the telephone company to get the Virtual Channel Identifier (VCI) number. The default value is 32.

Static IP Address: Enter the information provided by your ISP.

Subnet Mask: Enter the information provided by your ISP.

ATM

Service Category: Select **UBR** or **CBR**.

Bandwidth: Enter the bandwidth.

ENCAPSULATION

There are eleven ways PPPoE VC-Mux, PPPoE LLC, PPPoE None, PPPoA VC-Mux, PPPoA LLC, 1483 Bridged IP VC-Mux, 1483 Bridged IP LLC, 1483 Routed IP VC-Mux, 1483 Routed IP LLC, Classical IP over ATM, Native ATM for the device to have a public IP address and then to access Internet. You have to check with your ISP about which way is adopted.

BRIDGE

If you set this device to be bridge mode, select **Enable**; if not, please select **Disable**.

IGMP

You can **Enable** or **Disable** this function.

PPP

If your encapsulation is set to be PPPoE or PPPoA, the following fields must be entered.

Service Name: This item is for identification purpose. If it is required, your ISP will provide you the information. Maximum input is **31** alphanumeric characters.

Username: Enter the username provided by your ISP.

Password: Enter the password provided by your ISP.

Disconnect Timeout seconds: Auto-disconnect the ADSL Router when there is no activity on the line for a predetermined period of time. You can input any number from **0** to **32767**. The default value is **0** seconds.

Authentication: Default at “Auto”.

Automatic Reconnect: Check to enable this device to automatically re-establish the PPPoE session when disconnected by ISP.

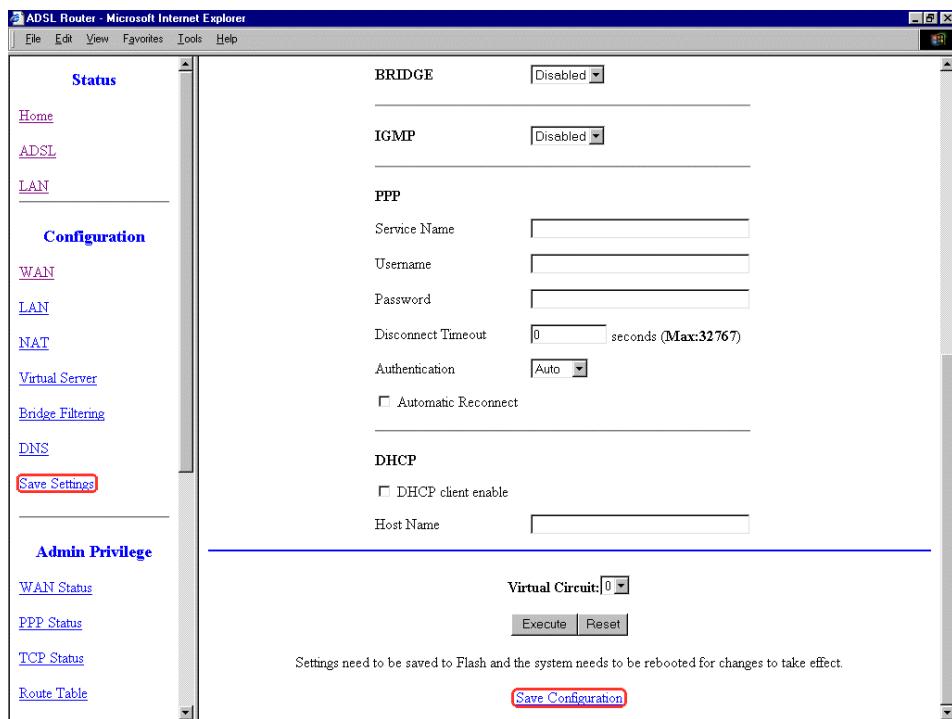
DHCP

DHCP client enable: Check to enable the DHCP client function if you want the device to get an IP address automatically from your ISP.

Host Name: Enter the name of your work group.

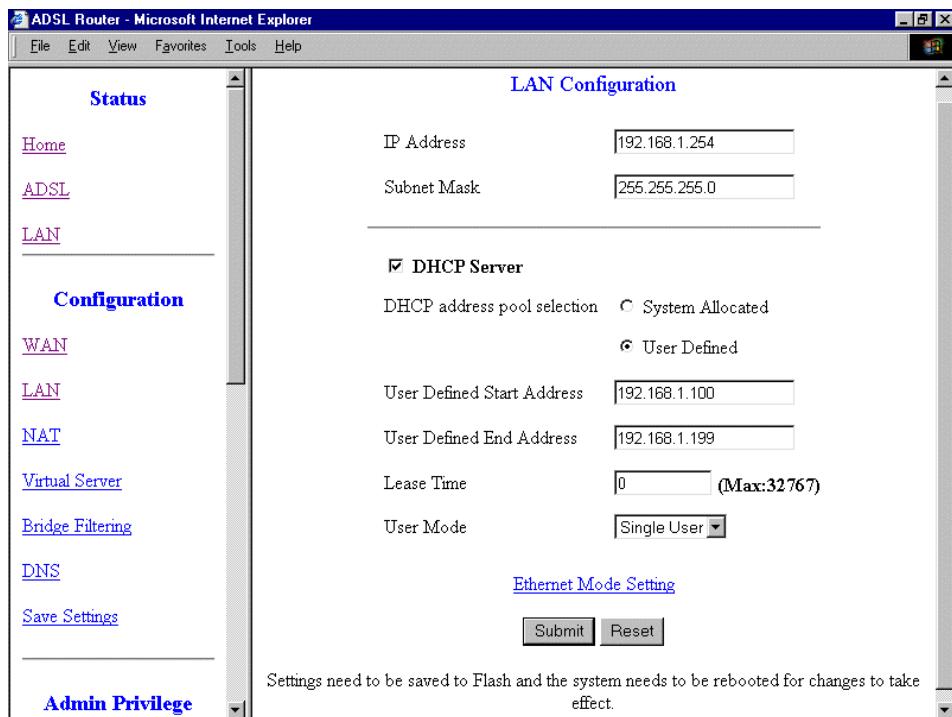


All settings need to be saved and the device needs to be rebooted before the changes to take effect.



3.5.5 Configuration – LAN Configuration

This screen contains settings for LAN interface attached to the LAN port.



IP Address: Default at **192.168.1.254**.

This is the device IP address in LAN site. If you plan to change it to another IP address to a different range of IP subnet. Please make sure your PC is also located at the same IP subnet. Otherwise, you may not be able to access the ADSL Router.

Subnet Mask: Default at **255.255.255.0**.

DHCP Server

Check to enable the ADSL Router to distribute IP Addresses, subnet mask and DNS setting to computers. If you do not check to disable the ADSL Router to distribute IP addresses to the local network, remember to specify a static IP address, subnet mask, and DNS setting for each of your local computers. Be careful not to assign the same IP address to different computers.



If there is already a DHCP server on your LAN, you should disable the router's DHCP server function in order to avoid possible conflicts.

DHCP address pool selection: Select **System Allocated** if you want the device to allocate the local IP network address pool automatically. Select **User Defined** if you would like to set your own IP addresses for distribution to PCs, and then enter your settings below.

User Defined Start Address: Enter the starting address of this local IP network address pool. The pool is a piece of continuous IP address segment. The default value is **192.168.1.100**.

User Defined End Address: Enter the end address of this local IP network address pool. The default value is **192.168.1.199**.

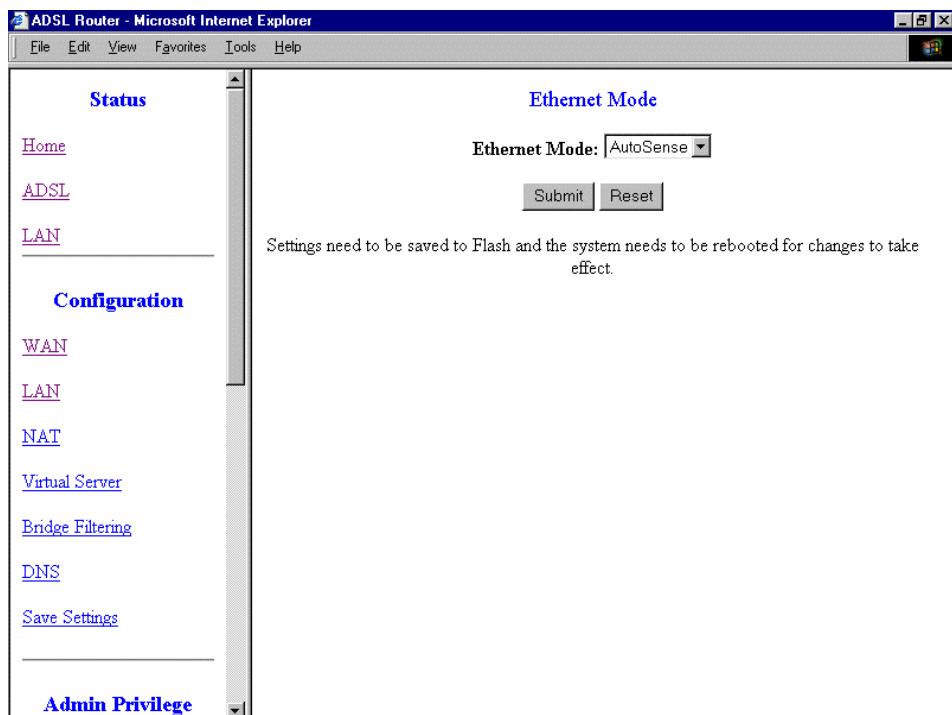
With this case, the local computer will get an IP address randomly located at this range, from 192.168.1.100 to 192.168.1.199.

Lease Time: Set the lease time you required.

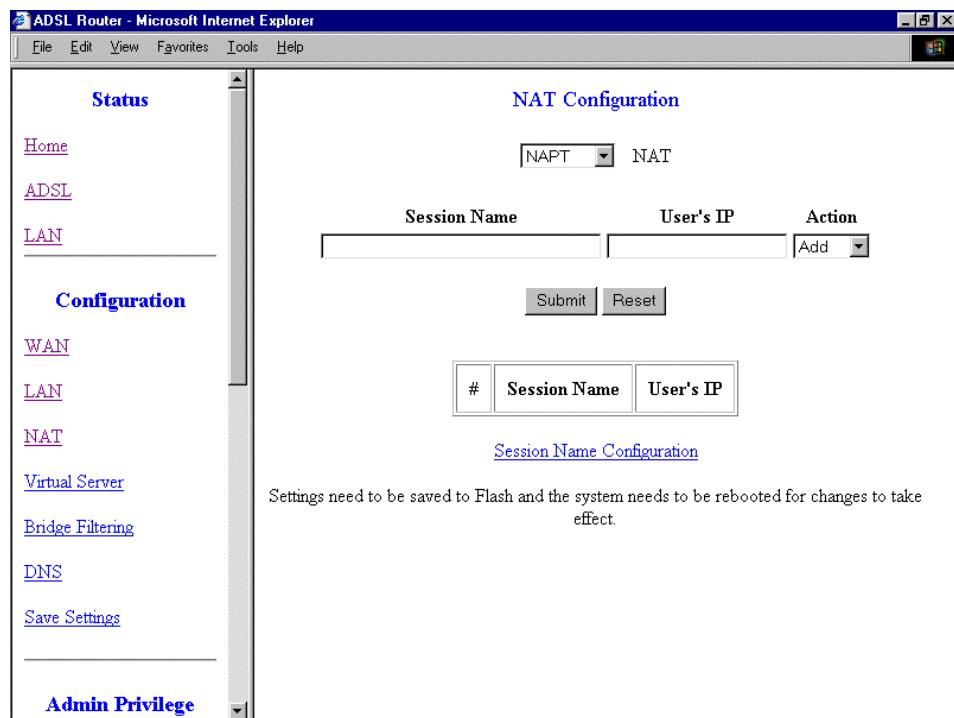
User Mode: There are two selections, Single User and Multi-User, for this setting.

Ethernet Mode Setting

Click this hyperlink to set the Ethernet mode of your LAN. There are five modes in total, including **Auto Sense**, **100 Full**, **100 Half**, **10 Full**, and **10 Half**.

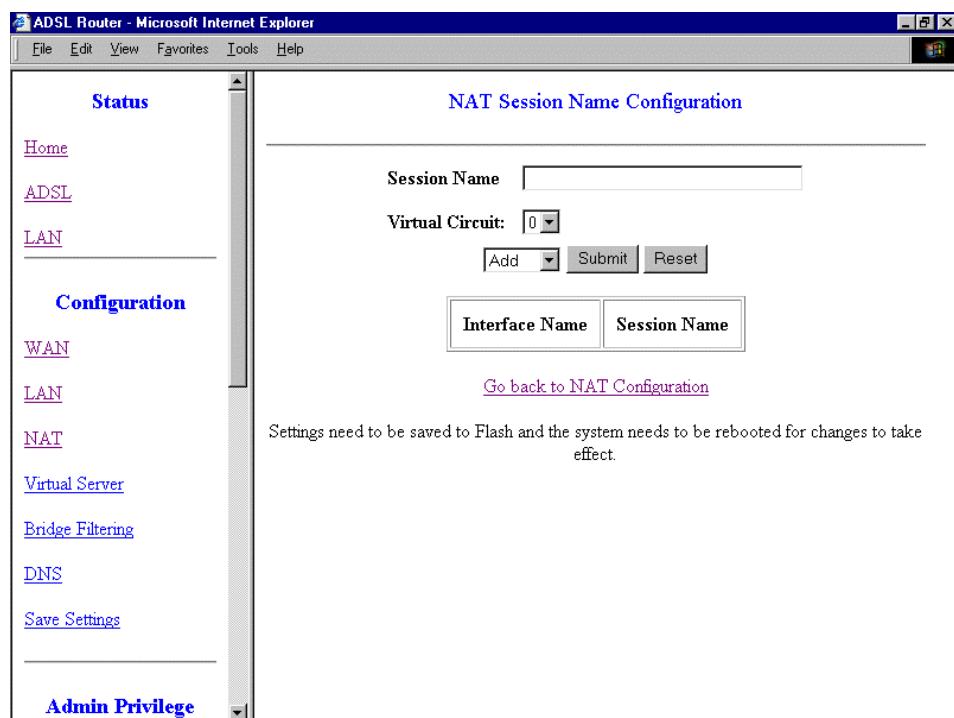


3.5.6 Configuration – NAT Configuration



The NAT feature allows multiple users to access Internet through a single IP account, sharing the single IP address from ISP. If users in the LAN site have public IP addresses and can access Internet directly, the NAT function can be disabled.

Whenever the NAT function is enabled, enter the **Session Name Configuration** page first.

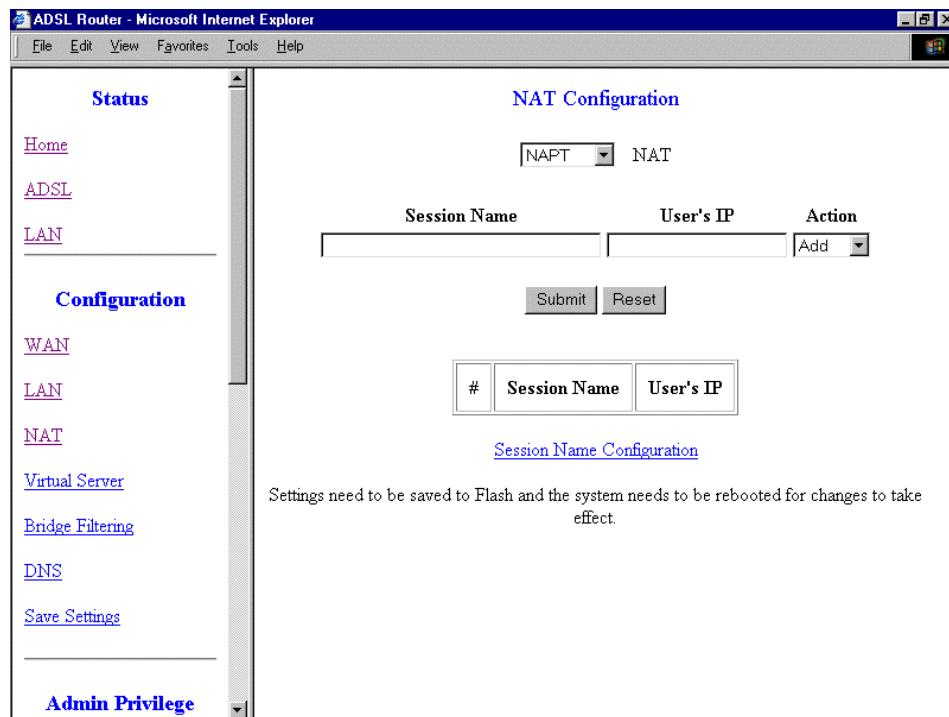


Session Name: Enter the desired session name.

Virtual Circuit: Select the virtual circuit item you want to configure. One virtual circuit can have only one session name.

Select **Add** or **Delete** and then press the **Submit** button to add or delete any NAT session name setting to/from the following table.

Go back to the previous page, NAT Configuration, to continue further settings.

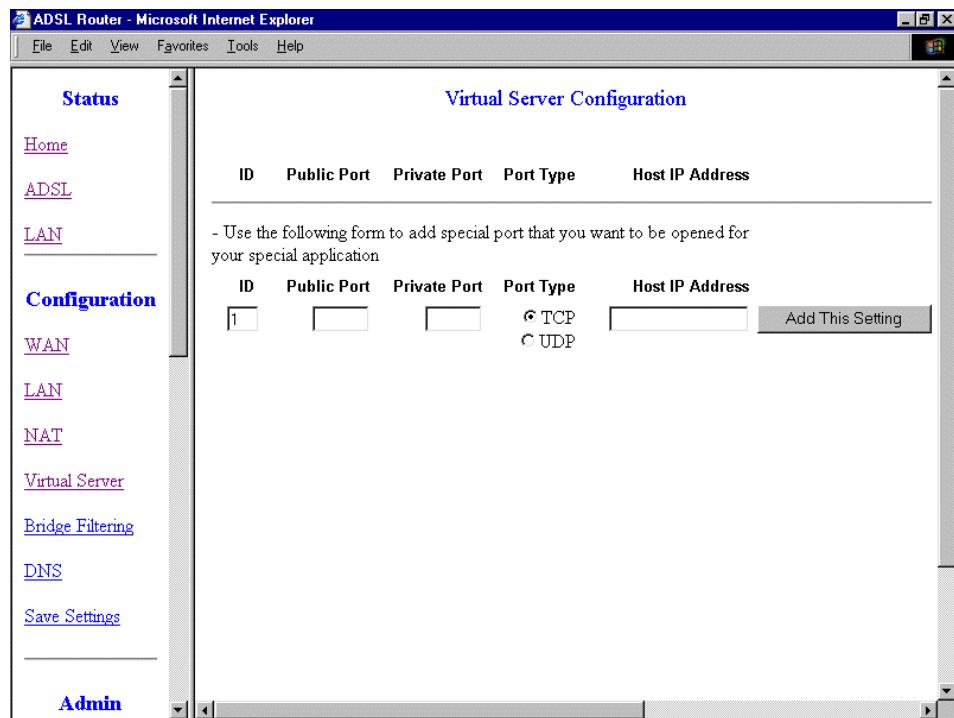


Session Name: Enter the session name you set up in the session name configuration page.

User's IP: Enter the user's IP address.

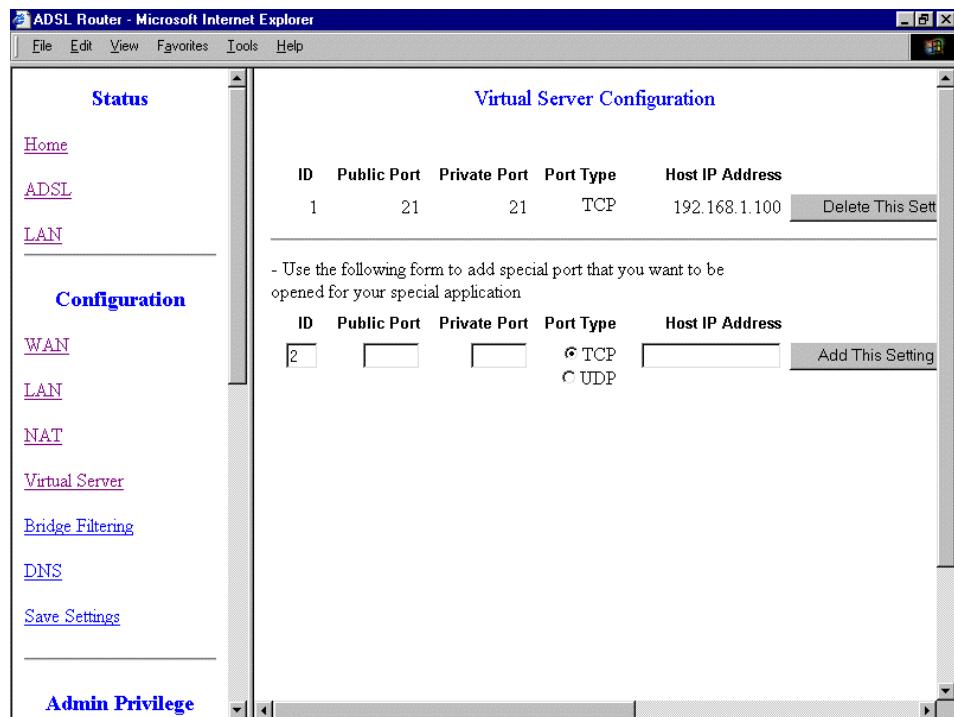
Action: Select **Add** or **Delete** and then press the **Submit** button to add or delete any NAT user's IP setting to/from the following table.

3.5.7 Configuration – Virtual Server Configuration



Being a natural Internet firewall, the ADSL Router protects your network from being accessed by outside users. When it needs to allow outside users to access internal servers, e.g. Web server, FTP server, E-mail server or News server, this product can act as a virtual server. You can set up a local server with specific port number that stands for the service, e.g. Web (80), FTP (21), Telnet (23), SMTP (25), POP3 (110), DNS (53), ECHO (7), NNTP (119). When an incoming access request to the router for specified port is received, it will be forwarded to the corresponding internal server.

For example, if you set the Public Port number 21 (FTP) to be mapped to the IP Address 192.168.1.100, then all the ftp requests from outside users will be forwarded to the local server with IP address of 192.168.1.100.



Public Port: Enter the public port number you want to configure.

Private Port: Enter the private port number you want to configure.

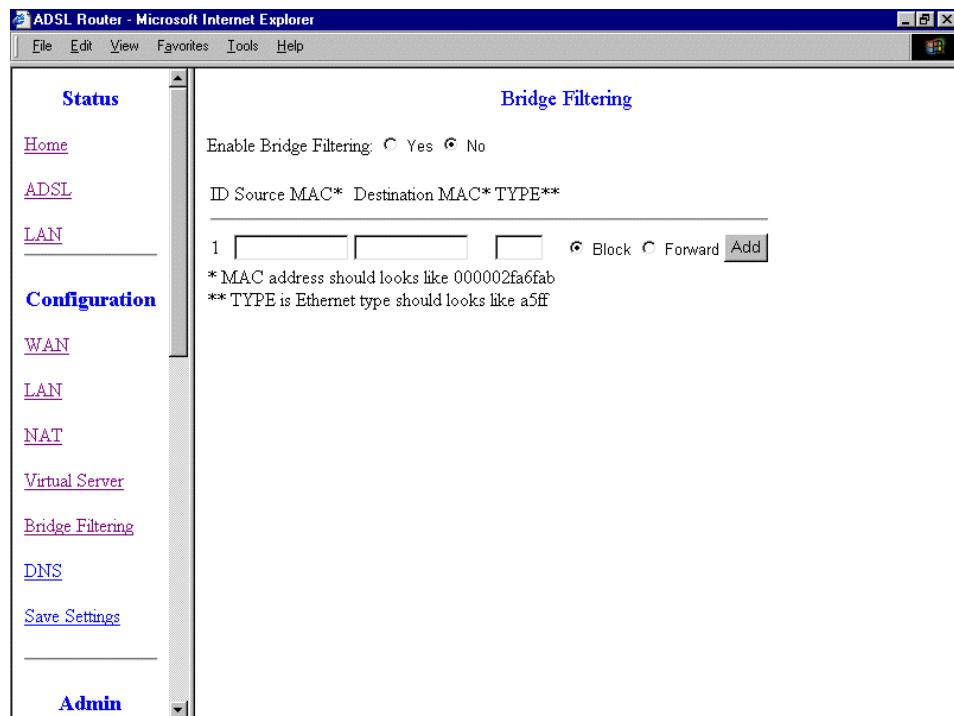
Port Type: Select **TCP** if you want to scope for the connection-based application service on the remote server using the port number. Or select **UDP** if you want to scope for the connectionless application service on the remote server using the port number.

Host IP Address: Enter the IP address of certain internal server to which requests from the specified port is forwarded.



If the DHCP server option is enabled, you have to be very careful in assigning the IP addresses of the virtual servers in order to avoid conflicts. The easy way is that the IP address assigned to each virtual server should not fall into the range of IP addresses that are to be issued by the DHCP server. You configure the virtual server IP address manually, but it is still in the same subnet with the router.

3.5.8 Configuration – Bridge Filtering Configuration



Enable Bridge Filtering: Check **Yes** to enable this function or check **No** to disable.

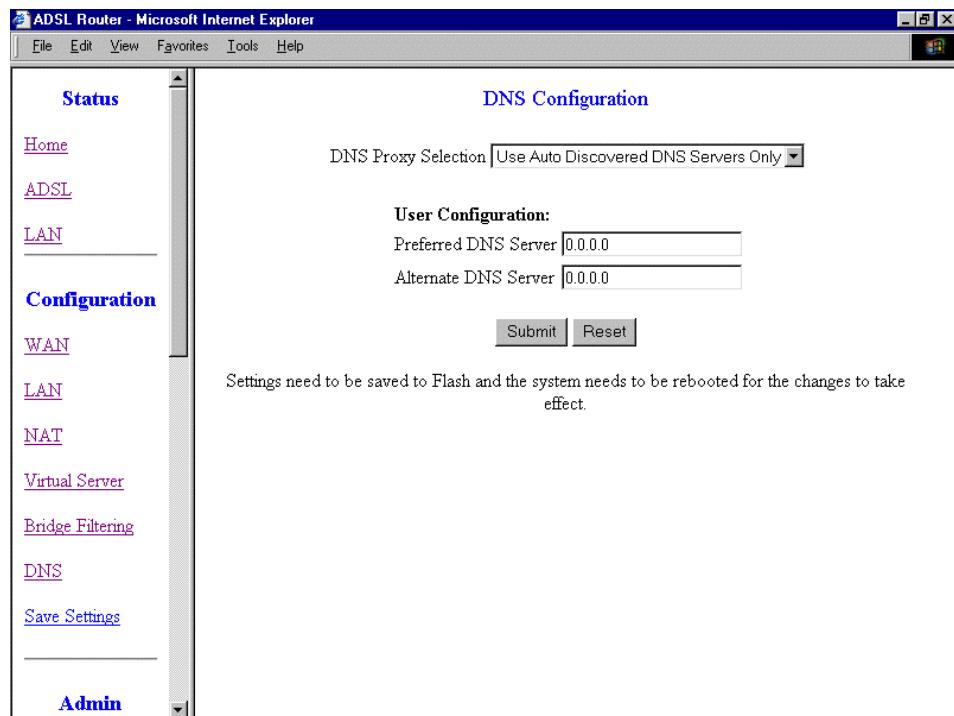
Source MAC: Enter the source MAC address.

Destination MAC: Enter the destination MAC address.

Type: Enter the Ethernet type.

Block **Forward:** Check **Block** if you want to block requests from the source MAC address sending to the destination MAC address. Check **Forward** if you want to forward requests from the source MAC address sending to the destination MAC address.

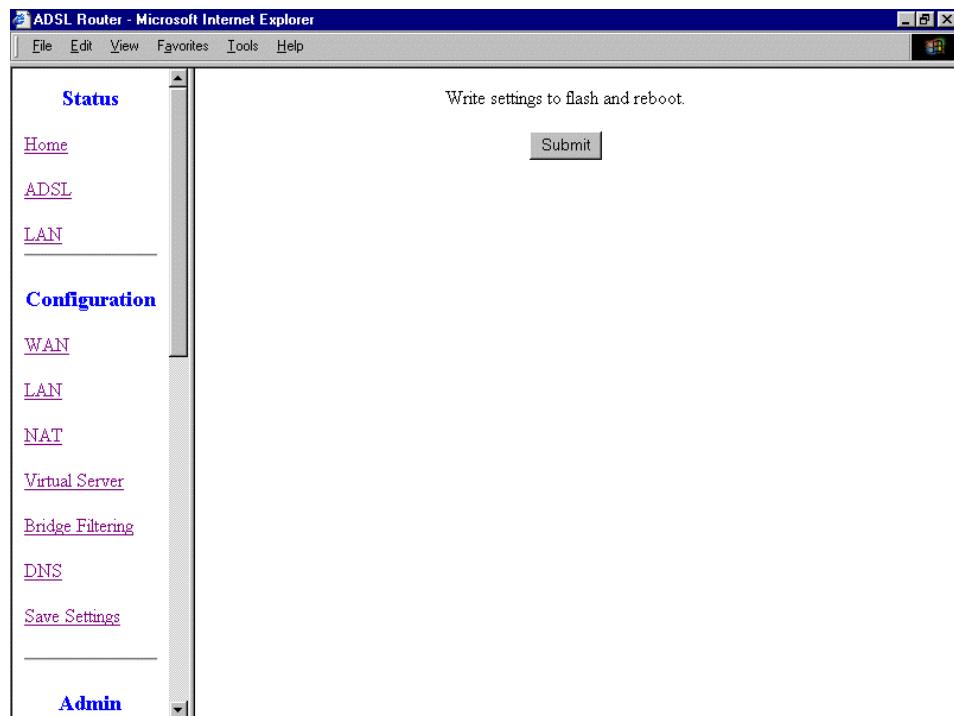
3.5.9 Configuration – DNS Configuration



A Domain Name System (DNS) contains a mapping table for domain name and IP address. In the Internet, every host has a unique and friendly name such as www.yahoo.com and IP address. The IP address is so hard to remember that you may just enter the friendly name www.yahoo.com and then the DNS will convert it to its equivalent IP address.

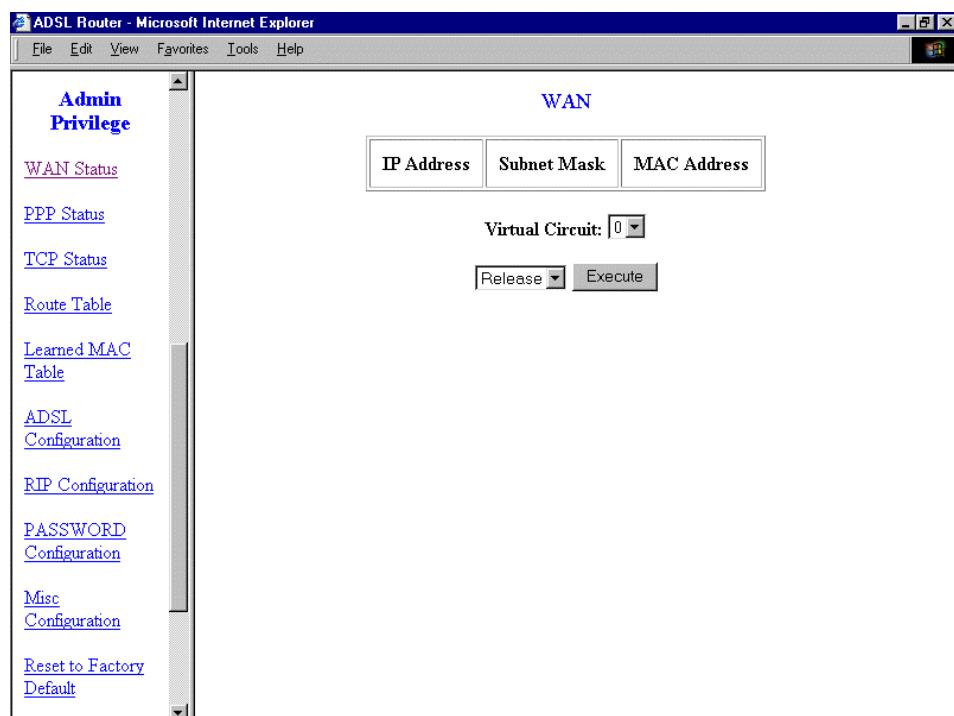
You can obtain Domain Name System (DNS) IP address automatically if ISP provides it when you logon. Or your ISP may provide you with an IP address of DNS. If this is the case, you must enter the DNS IP address.

3.5.10 Configuration – Save Settings



Click the **Submit** button to write settings to flash. Then, the system will reboot for changes to take effect.

3.5.11 Admin Privilege – WAN Status



Each VC setting you enabled in the **WAN Configuration** section except that uses the PPP encapsulation will be displayed in this table.

3.5.12 Admin Privilege – PPP Status

Display the PPP and data transmission status of each VC.

VC	Status	Pkts Sent	Pkts Revd	Bytes Sent	Bytes Rcvd
0	Not Connected	0	0	0	0
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A

Virtual Circuit: 0

Connect Execute

Select the virtual circuit you want to **Connect** or **Disconnect** and click **Execute**. System will start connecting.

VC	Status	Pkts Sent	Pkts Revd	Bytes Sent	Bytes Rcvd
0	Not Connected	0	0	0	0
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A

Virtual Circuit: 0

Connect Execute

PVC - 0 Connecting....

If you are not using the PPPoE or PPPoA encapsulation, the Connect command cannot be executed.

ADSL Router - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Admin Privilege

PPP

VC	Status	Pkts Sent	Pkts Revd	Bytes Sent	Bytes Rcvd
0	Not Connected	0	0	0	0
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A

Virtual Circuit: 1

Connect Execute

PVC - 1 is Not PPP Encapsulation!

If the VC setting is disabled in the **WAN Configuration** section, the line cannot be connected, either.

ADSL Router - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Admin Privilege

PPP

VC	Status	Pkts Sent	Pkts Revd	Bytes Sent	Bytes Rcvd
0	Not Connected	0	0	0	0
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A

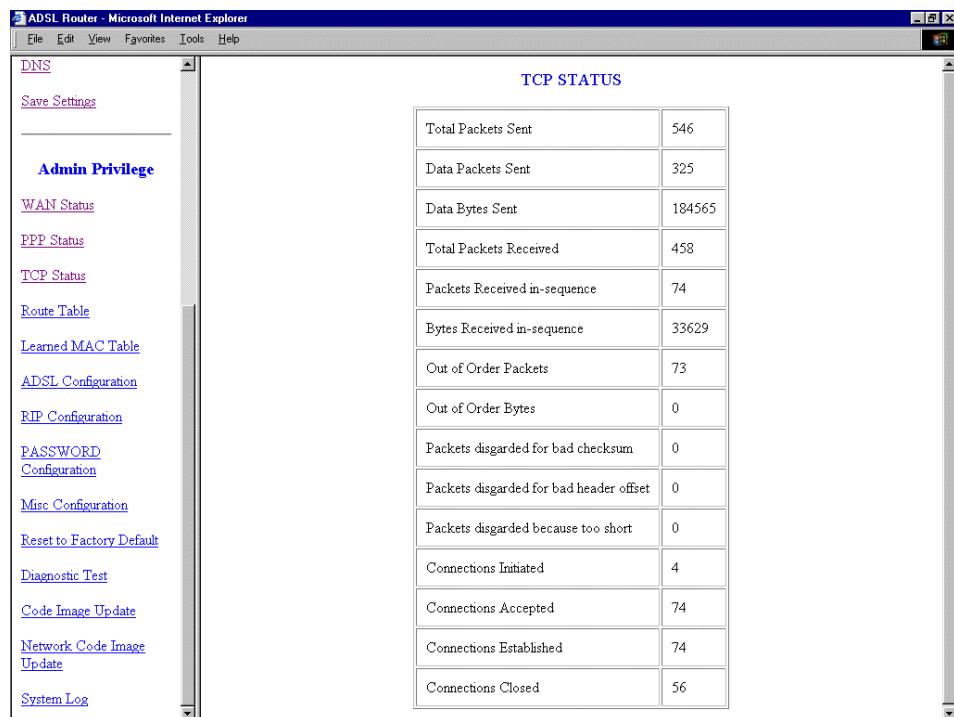
Virtual Circuit: 2

Connect Execute

PVC - 2 is not enabled!

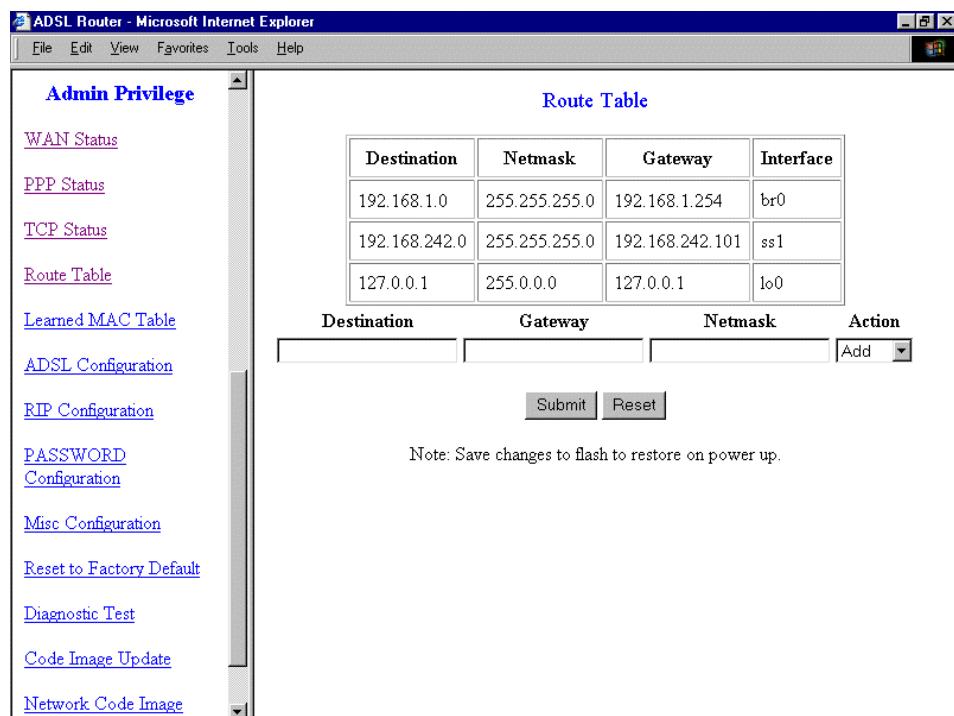
3.5.13 Admin Privilege – TCP Status

Display the status of TCP. This screen will automatically refresh every two seconds.



TCP STATUS	
Total Packets Sent	546
Data Packets Sent	325
Data Bytes Sent	184565
Total Packets Received	458
Packets Received in-sequence	74
Bytes Received in-sequence	33629
Out of Order Packets	73
Out of Order Bytes	0
Packets discarded for bad checksum	0
Packets discarded for bad header offset	0
Packets discarded because too short	0
Connections Initiated	4
Connections Accepted	74
Connections Established	74
Connections Closed	56

3.5.14 Admin Privilege – Route Table



Route Table			
Destination	Netmask	Gateway	Interface
192.168.1.0	255.255.255.0	192.168.1.254	br0
192.168.242.0	255.255.255.0	192.168.242.101	ss1
127.0.0.1	255.0.0.0	127.0.0.1	lo0

Destination	Gateway	Netmask	Action
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/> <input type="button" value="Submit"/> <input type="button" value="Reset"/>

Note: Save changes to flash to restore on power up.

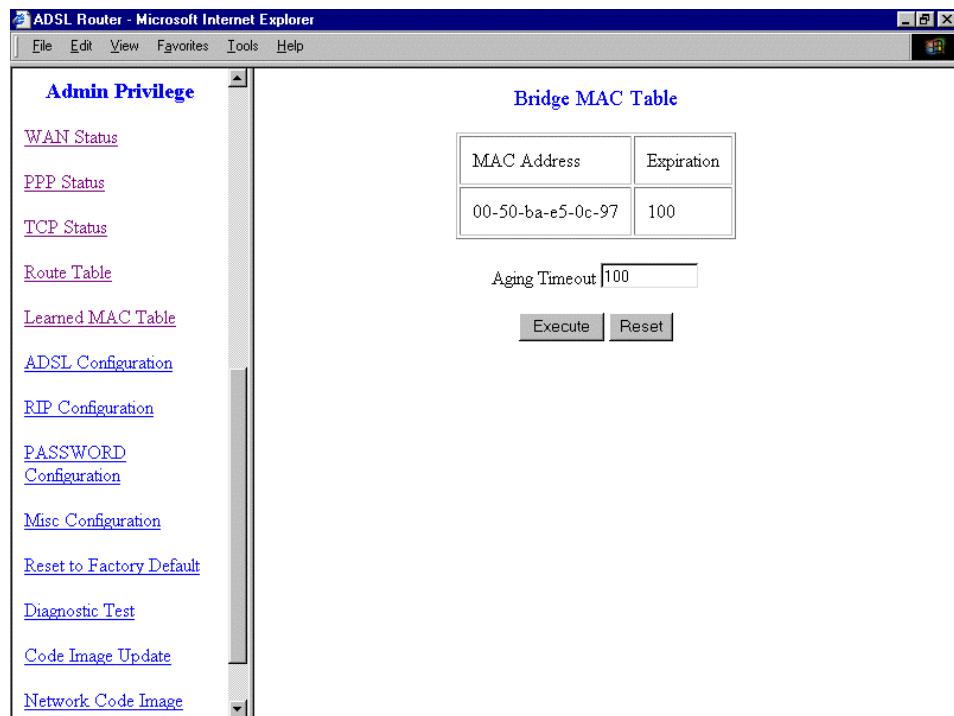
If you have another router with a LAN-to-LAN connection, you may create a static routing on the router that is the gateway to Internet.

Destination: Fill in the field required by this routing function.

Netmask: Fill in the field required by this routing function.

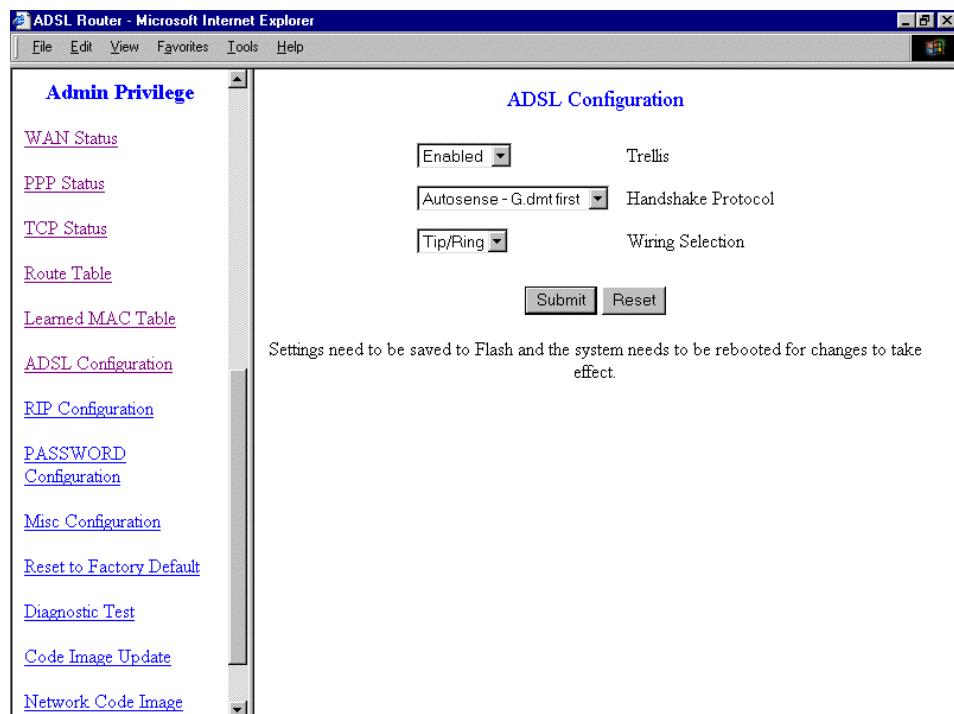
Gateway: Fill in the field required by this routing function.

3.5.15 Admin Privilege – Learned (Bridge) MAC Table



Aging Timeout: Enter the time period for the router to memorize MAC addresses.

3.5.16 Admin Privilege – ADSL Configuration



Trellis: Default at Enabled.

Handshake Protocol: Default at **Autosense – G.dmt first**. You can also choose other protocols, such as **Autosense – T1.413 first, G.dmt/G.lite, T1.413, G.dmt, G.lite**.

Wiring Selection: Default at **Tip/Ring**. Select **Auto** or **A/A1** if necessary.

3.5.17 Admin Privilege – RIP Configuration

The screenshot shows a Microsoft Internet Explorer window titled "ADSL Router - Microsoft Internet Explorer". The left sidebar contains a navigation menu with the following items: WAN Status, PPP Status, TCP Status, Route Table, Learned MAC Table, ADSL Configuration, RIP Configuration (which is the current page), PASSWORD Configuration, Misc Configuration, Reset to Factory Default, Diagnostic Test, Code Image Update, and Network Code Image. The main content area is titled "RIP Configuration". It contains the following settings:

RIP	Disabled	
Supplier	True	
Gateway	False	
Multicast	False	
Interval	30	Seconds

Below these settings is a note: "Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect." At the bottom of the page are "Submit" and "Reset" buttons.

RIP: Default at **Disabled**.

Supplier: Default at **True**.

Gateway: Default at **False**.

Multicast: Default at **False**.

Interval seconds: The default value is **30** seconds.

3.5.18 Admin Privilege – Password Configuration

The screenshot shows a Microsoft Internet Explorer window titled "ADSL Router - Microsoft Internet Explorer". The main content area is titled "Admin Privilege" and "Password Configuration". It contains two text input fields: "Admin Password" and "User Password", both currently showing "*****". Below the fields are two buttons: "Submit" and "Reset". A note in the center of the page states: "For FTP to work, the password for Admin should be at least 8 characters. Do not use '&' in the passwords." At the bottom, a message says: "Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect." On the left side of the window, there is a vertical sidebar with a list of links: "WAN Status", "PPP Status", "TCP Status", "Route Table", "Learned MAC Table", "ADSL Configuration", "RIP Configuration", "PASSWORD Configuration", "Misc Configuration", "Reset to Factory Default", "Diagnostic Test", "Code Image Update", and "Network Code Image".

In factory setting, the default password for administrator is password, and that for user is also password. You can change the default password to ensure that someone cannot adjust your settings without your permission. Every time you change your password, please record the password and keep it at a safe place.

Please note that the minimum input for password is **8** alphanumeric characters long. Since it is **case sensitive**, be sure that you remember whether a letter is in upper or lower case and make sure that your Caps Lock is off. Moreover, please do not use the sign “&” in the passwords.

3.5.19 Admin Privilege – Miscellaneous Configuration

WAN side HTTP server: Default at **Disabled**.

FTP server: Default at **Enabled**.

TFTP server: Default at **Disabled**.

HTTP server port: Default at **80**.

DMZ: Regarding the DMZ Host, it is a local computer exposed to the Internet. Therefore, an incoming packet will be checked by NAT algorithms in the ADSL Router, then passed to the DMZ host when the packet is not sent by hacker or not limited by the virtual server list.

DMZ HOST IP: Enter the IP address of the DMZ host.

DNS Proxy: Default at Enabled.

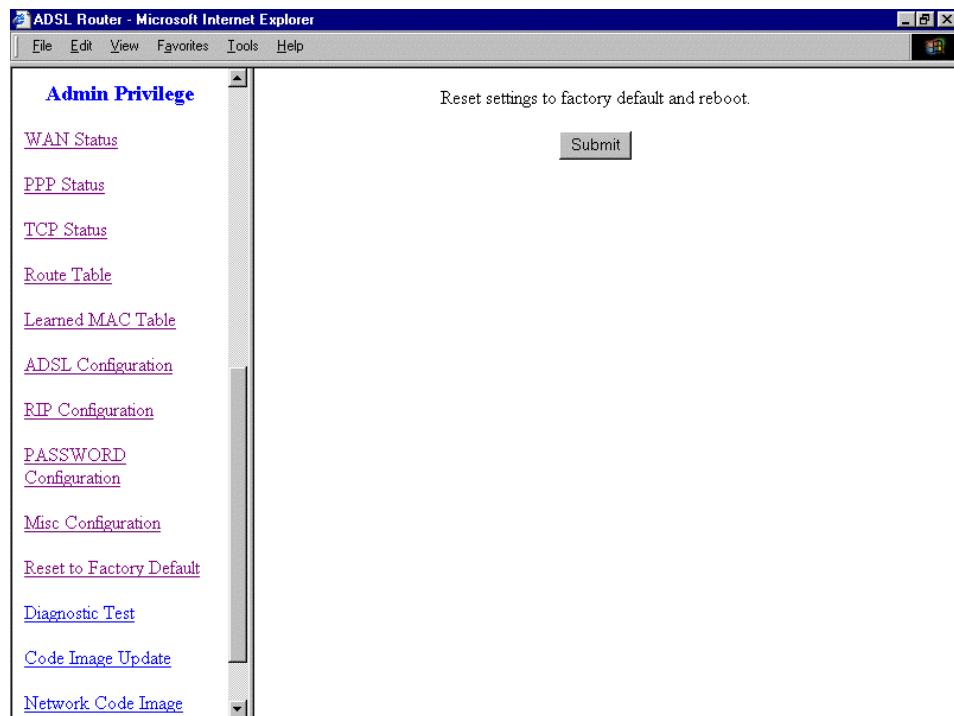
DHCP Relay: Default at Disabled

DHCP Target IP:

IGMP Proxy: Default at **Disabled**.

PPP reconnect on WAN access: Default at **Disabled**. Select **Enabled** if you want to automatically re-establish the PPPoE/PPPoA session when disconnected by ISP.

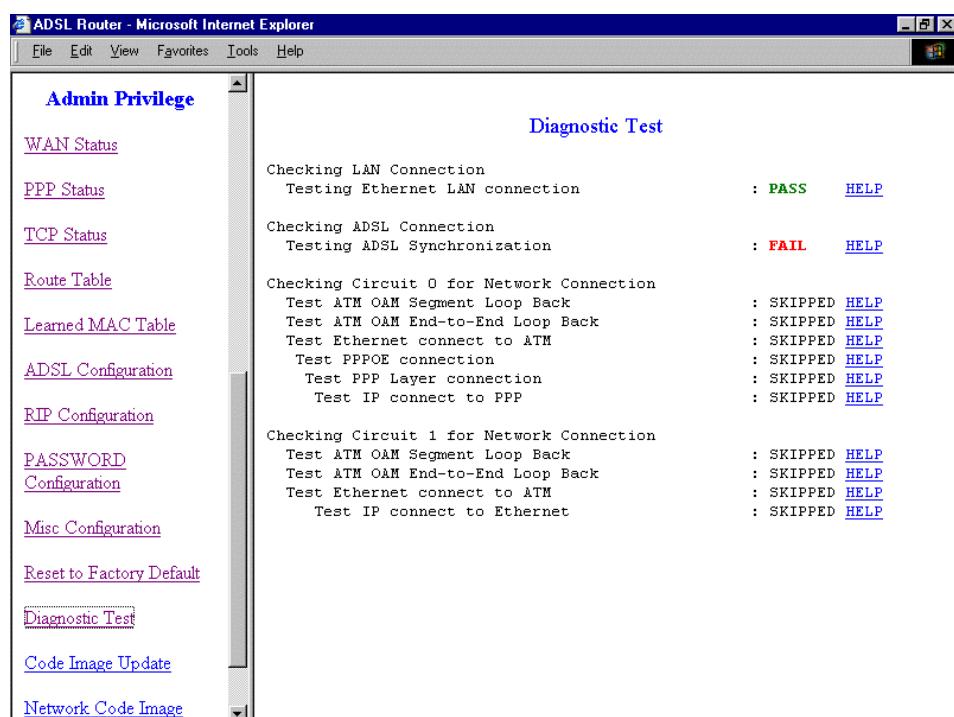
3.5.20 Admin Privilege – Reset to Factory Default



If for any reason you have to reset this ADSL Router back to factory default settings, be careful that the current settings will be lost and the settings are reset back to its default state. The factory default values is detailed in **section 3.2 “Factory Default Settings”**.

3.5.21 Admin Privilege – Diagnostic Test

As soon as you enter the test program, all tests will run automatically to diagnose the connection status of the device.



Checking LAN Connection

Testing Ethernet LAN connection

This test passes if the Ethernet LAN interface is working properly.

Checking ADSL Connection

Testing ADSL Synchronization

This test checks your DSL modem to see if it can successfully negotiate and establish a DSL connection with your service provider's central office equipments. The test returns PASS if a DSL connection is established.

If this test returns FAIL, please try the test again a few minutes after this test is completed. Since your DSL modem need a couple of seconds to a few minutes to establish the DSL connection depending on your phone line quality. If this test returns FAIL, make sure your phone line is connected to your DSL modem securely, and also check with your service provider to see if your service is activated.

If this test returns FAIL, all other tests will be skipped.

Checking Circuit 0 for Network Connection

Test ATM OAM Segment Loop Back

This test sends ATM OAM F5 Segment loop back request cells to the central office equipments through your DSL connection. This test will pass if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test fails consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns FAIL if the DSL synchronization test failed.

Test ATM OAM End-to-End Loop Back

This test sends ATM OAM F5 End-to-End loop back request cells to the central office equipments through your DSL connection. This test returns PASS if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test return FAIL consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns SKIPPED if the DSL synchronization test failed.

Test Ethernet connect to ATM

This test returns PASS if the ATM AAL5 module is loaded correctly in your DSL modem. If this test returns FAIL, an internal error has occurred.

This test returns SKIPPED if the DSL synchronization does not return PASS.

Test PPPoE connection

This test returns PASS if your login name and password have passed authentication with your service provider.

If this test returns FAIL, run this test again a few minutes after this test is completed, especially if your PPP connection has just been improperly disconnected. If this test consistently fails, first make sure your login name and password are correct. Remember that login name and password are case sensitive.

This test returns SKIPPED if “PPPOE connect to Ethernet” test does not return PASS and your DSL modem is configured as PPPOE encapsulation.

This test also returns SKIPPED if “Ethernet connect to AAL5” test does not return PASS and your DSL modem is configured as PPPOA encapsulation.

Test PPP Layer connection

This test returns PASS if your DSL modem has been assigned a valid IP address by your service provider through DHCP or your DSL modem is assigned a valid IP address statically.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and DHCP client is turned on in your DSL modem, check with your service provider. If this test returns FAIL consistently and your DSL modem is statically assigned an IP address, make sure the IP address is the correct one assigned by your service provider.

This test returns SKIPPED if “Ethernet connect to AAL5” test does not return PASS.

Test IP connect to PPP

This test returns PASS if your DSL modem has been assigned a valid IP address by your service provider through DHCP or your DSL modem is assigned a valid IP address statically.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and DHCP client is turned on in your DSL modem, check with your service provider. If this test returns FAIL consistently and your DSL modem is statically assigned an IP address, make sure the IP address is the correct one assigned by your service provider.

This test returns SKIPPED if “Ethernet connect to AAL5” test does not return PASS.

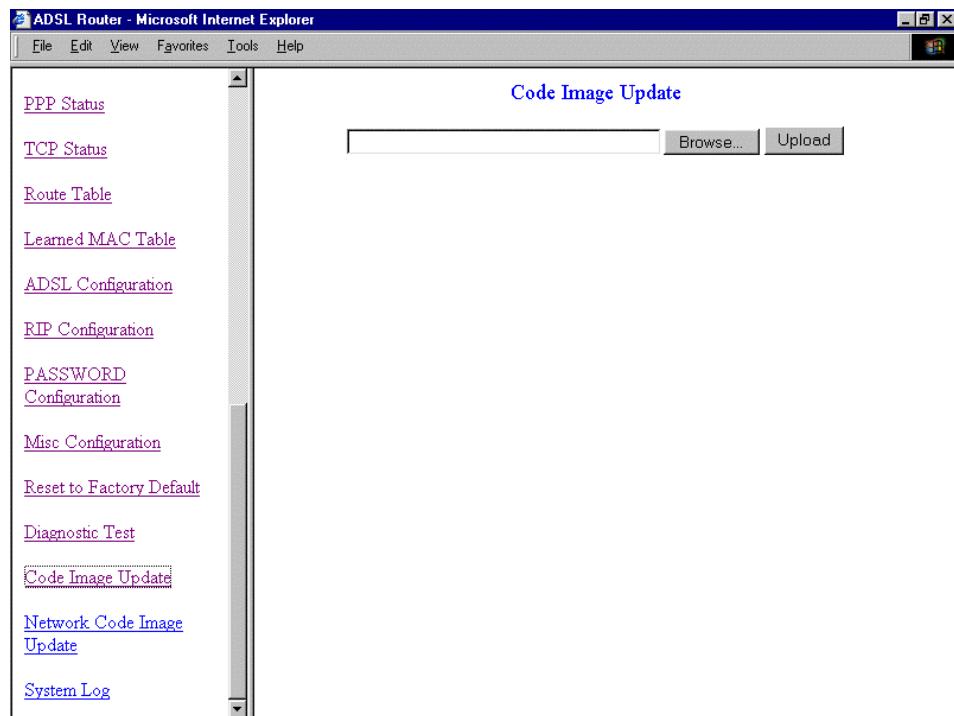
Test IP connect to Ethernet

This test returns PASS if the gateway can be reached through ping request. The gateway is assigned by your service provider, or obtained from your service provider by PPP negotiation or DHCP negotiation.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and your DSL modem seems not working, check to make sure your statically assigned IP address is configured correctly or DHCP client is turned on with the current VC.

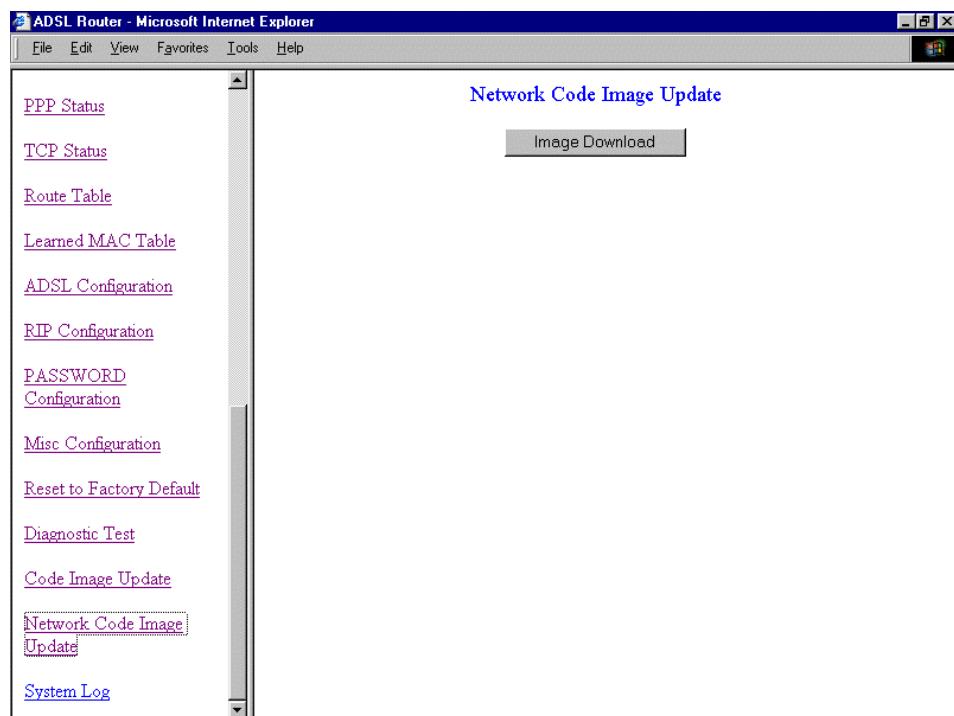
This test returns SKIPPED if "IP connect to PPP" or "IP connect to Ethernet" test does not return PASS.

3.5.22 Admin Privilege – Code Image Update

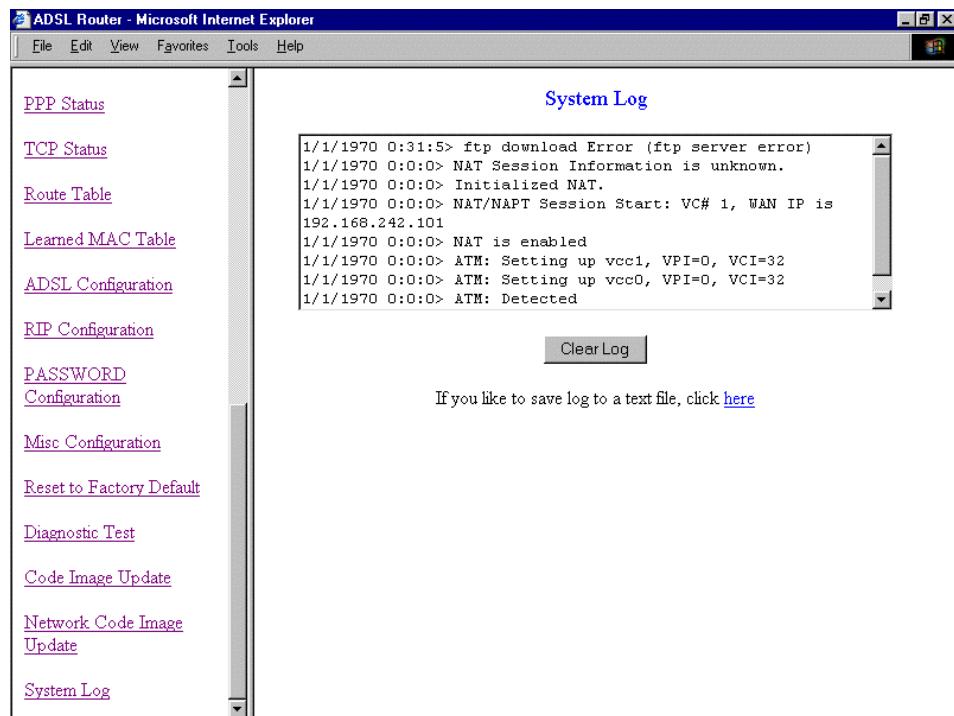


To upgrade the firmware of the ADSL Router, you should download or copy the firmware to your local environment first. Press the “**Browse...**” button to specify the path of the firmware file. Then, click “**Upload**” to start upgrading. When the procedure is completed, please reboot the device to make the new firmware work.

3.5.23 Admin Privilege – Network Code Image Update



3.5.24 Admin Privilege – System Log



Display the system logs cumulated till the present time. You can trace the historical information through this function. It refreshes every five seconds.

Chapter 4

Troubleshooting

If the ADSL Router is not functioning properly, you can refer first to this chapter for simple troubleshooting before contacting your service provider. This could save your time and effort but if the symptoms persist, then consult your service provider.

Problems Starting Up the ADSL Router

Problem	Corrective Action
None of the LEDs are on when you turn on the ADSL Router.	Check the connection between the adapter and the ADSL Router. If the error persists, you may have a hardware problem. In this case, you should contact technical support.

Problems with the WAN Interface

Problem	Corrective Action
Initialization of the PVC connection failed.	Ensure that the cable is connected properly from the ADSL port to the wall jack. The ADSL SYN LED on the front panel of the ADSL Router should be on. Check that your VPI, VCI, type of encapsulation and type of multiplexing settings are the same as what you collected from your telephone company and ISP. Reboot the ADSL Router. If you still have problems, you may need to verify these variables with the telephone company and/or ISP.

Problems with the LAN Interface

Problem	Corrective Action
Can't ping any station on the LAN.	Check the LAN LNK LED on the front panel. The LED should be on for a port that has a station connected. If it is off, check the cables between your ADSL Router and the station. Verify that the IP address and the subnet mask are consistent between the ADSL Router and the workstations.

Problems Connecting to a Remote Node or ISP

Problem	Corrective Action
Can't connect to ISP.	Check <i>section 3.4.12 “Admin Privilege – PPP status”</i> to verify the line status.

APPENDIX

Specification

Protocols	IP, NAT, NAPT, PPPoE, PPPoA, IPoA, DHCP, ICMP, IGMP, PAP, CHAP
LAN Port	RJ-45, 1 port 10/100Base-T
WAN Port	RJ-11, 1 ADSL port to external DSL/Cable Modem, or other network equipment
USB Port	1.1 slave interface
LED Indicators	SYS, ADSL RD, ADSL TD, ADSL SYN, LAN LNK, LAN ACT, PWR
Input Power	12V DC @1A
Physical Dimension	181 x 122 x 41 mm ³ (L x W x H)
Weight	300g
Operating Temperature	0 °C to 45 °C
Storage Temperature	-10 °C to 70 °C
Relative Humidity	5% to 95% non-condensing